CHARACTERISTICS OF YOUNG DRIVERS INVOLVED IN THE ROAD ACCIDENTS IN DAMMAM METROPOLITAN AREA

BY

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In the Name of Allah, the Most Gracious, the Most Merciful

I dedicate this humble work to my brother Ahmed, my beloved parents, my wife and all of my family members. Moreover, I dedicate this work to Hadhramout Establishment for Human Development and Eng. Abdullah Ahmed Bugshan for their help and support

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LIST OF ABBREVIATIONS

BFI : Big Five Inventory Test

KSA : Kingdom of Saudi Arabia

NHTSA : National Highway Traffic Safety Administration

OECD : Organization for Economic Co-operation and Development

RTAs : Road Traffic Accidents

SWOV : Institute for Road Safety Research (The Netherlands)

WHO : World Health Organization

ABSTRACT

Full Name : Salem Mohammed Ahmed Babtain

Thesis Title : CHARACTERISTICS OF YOUNG DRIVERS INVOLVED IN THE ROAD ACCIDENTS IN DAMMAM METROPOLITAN AREA

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Road traffic accidents (RTAs) have become an internationally recognized concern as they have become a worldwide cause of deaths. Young drivers or novice drivers are overrepresented in road traffic accidents and injury fatality statistics throughout the world. Traffic accidents have become a worrying issue in Saudi Arabia, where traffic accidents threaten the health and the lives of its citizens, its economy, security and productivity. This study tackles the characteristics of young drivers involved in road accidents and traffic violations in the Dammam Metropolitan Area in the Kingdom of Saudi Arabia (KSA). Moreover, the study addresses young men's driving for fun, such as driving over sand dunes, illegal drifting and wheeling and car video games. Big Five Inventory psychology test is used to identify the personality of young drivers involved in accidents and traffic violations. The results show that, there is a relationship between the young drivers and the personality of drivers. Also, it was found that, driving for fun, such as driving over sand dunes and drifting and wheeling represents high risk factors of young drivers' involvement in traffic accidents and violations. The research results lead to a better understanding of young drivers involved in road accidents, and suggest recommendations to reduce road accidents among young drivers.

ملخص الرسالة

الاسم الكامل: : سالم محمد احمد بابطين

عنوان الرسالة: خصائص السائقين الشباب المتسببين في ارتكاب حوادث الطرق في منطقة الدمام الحضرية

التخصص: هندسة مدنية

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اصبحت حوادث الطرق مصدر قلق يهدد حياة الكثير من الناس في انحاء العالم, حيث اضحت حوادث الطرق واحدة من اكثر اسباب الوفيات في كثير من بلدان العالم. وفقا للاحصائيات فأن السائقين الشباب في ارتكاب حوادث الطرق في ازدياد سنويا, حيث ان هذه الفيئة تعتبر الاكثر بين الوفيات في حوادث الطرق في معظم البلدان. في المملكة العربية السعودية اصبحت حوادث الطرق قضية شائكة تهدد حياة وصحة المجتمع السعودي وكذلك اقتصادة وامنة وانتاجة

تناولت هذه الدراسة خصائص السائقين الشباب في ارتكاب حوادث الطرق والمخالفات المرورية في منطقة الدمام الحضرية في المملكة العربية السعودية دراسة وتحليلا. حيث تناولت الدراسة تاثير بعض سلوكيات السائقين الشباب في المنطقة مثل التفحيط والتطعيس بالاضافة الى العاب الفديو وغيرها وانعكاساتها على مرتكبي حوادث الطرق. وقد تم استخدام مقياس العوامل الخمسة الكبرى في دراسة شخصية السائقين المتسببين في اتكاب الحوادث والمخالفات المرورية. وقد اظهرت نتائج البحث ان هناك علاقة بين الحوادث والمخالفات المرورية وشخصية السائقين الشباب. وكذلك اظهرت الدراسة ان هناك علاقة بين ارتكاب الحواث المرورية وممارسة هواية التفحيط والتطعيس. بالاضافة الى ذلك فقط اعطت الدراسة تصورا اعمق عن السائقين الشباب في ارتكاب الحوادث والمخالفات المرورية في المنطقة.

CHAPTER 1

INTRODUCTION

1.1 Background

Road traffic accidents (RTAs) are becoming an internationally recognized concern because they are becoming a worldwide cause of deaths. Worldwide, there are more than 3,000 deaths every day (Peden et al., 2004). Global status report on road safety published in June 2009 by the World Health Organization (WHO) states that, road accidents lead to the deaths of about 1.3 million people and injure between 20 and 50 million more throughout the world every year. Moreover, young people are the most frequent victims of road accidents. Around 1,000 young people (younger than 25 years) are killed due to road accidents every day (Global status report on road safety: time for action, 2009). According to the analysis of the Global Road Safety Status Report, the Eastern Mediterranean Region is ranked as having the highest number of fatalities due to RTAs (32.2 per 100, 000 population) (Soori et al., 2011).

Globally, road accidents are the leading cause of death for young or novice drivers and riders (WHO, 2000). National Highway Transportation Safety Administration (NHTSA) states that vehicle crashes and road accidents are the leading cause of death for young people aged between 15 to 20 years old (NHTSA, 2009).

Worldwide, young drivers or novice drivers are overrepresented in road traffic crashes and injury fatality statistics (OECD, 2006). Young drivers under the age of 25 represent the greatest share of road accidents and fatalities in most countries around the world (Engström et al., 2004; OECD, 2004).

The fast economic growth in the Kingdom of Saudi Arabia, as a result of oil and the economic boom in 1973, has led to an enormous increase in the motorization rate (Al-Ghamdi, 1996). As a result of that, the road traffic accidents (RTAs) have become a serious public health problem in the Kingdom of Saudi Arabia.

The traffic accident phenomenon has become a worrying issue in Saudi Arabia, where traffic accidents threaten the health and the lives of its citizens, and its economy, security and productivity.

This study will tackle the characteristics of young drivers involved in road accidents in the Dammam Metropolitan Area in the Kingdom of Saudi Arabia (KSA). It aims to find out the causes and the effects of this issue and propose appropriate solutions and recommendations.

1.2 Statement of the Problem

Internationally, young drivers or novice drivers (16-24 years old) have greatly and gradually increased in number and over-represented in TRAs and traffic fatality statistics. They represent a greater risk not only to themselves, but also to their passengers and other road users (OECD, 2006).

According to SWOV fact sheets in the Netherlands, young drivers (18 -24 years old) have a road accident rate more than four times higher than those experienced drivers aged 30 to 59 years (SWOV, 2010). Road traffic accident (RTAs) rates are the highest among the youngest drivers; in the year 2000, in the United States, 16 year old drivers caused three times as many crashes and twice the number of fatal crashes per mile traveled as caused by drivers aged 19 years old (Shope et al., 2008).

In the Kingdom of Saudi Arabia, young drivers are involved in RTAs and represent a high risk to lives, and to the economy and security of the country. The General Directorate of Traffic statistics issued by the Ministry of Interior in Saudi Arabia shows that 47,750 accidents were caused by young drivers less than 18 years old, and 119,124 accidents by young drivers aged between 18 to 30 years old in 1420H – 1999H. These numbers have increased to 80,096 for those aged less than 18 years old and to 283,858 for those aged between 18 to 30 years old (General Directorate of Traffic, KSA, 1999 and 2008).

During the last two decades, the lifestyle of young drivers has changed dramatically. Long hours of video games and entertainment activities involving virtual driving or fun driving are expected to affect the behavioral characteristics of young drivers encouraging them towards aggressive driving.

Furthermore, the personality types of young drivers are expected to affect the risk factors. Several procedures are available to classify young drivers according to their personality type. If we can identify high risk young drivers earlier, measures can be taken to mitigate the effect of young drivers.

Many studies in many countries have indicated young drivers as a high risk population. What is it about young drivers that make them such a high risk group? Characteristic of young drivers involved in the RTAs should be studied to investigate the behavior of this group.

1.3 Research Objectives

As mentioned in the literature review, the young or novice drivers represent a high risk among societies throughout the world. In Saudi Arabia, this group of drivers has been considered a high risk and is overrepresented in the accident statistics and road traffic fatalities. Hence, the main objectives of this study are:

- To identify the relationship between characteristics of young drivers and their involvement in road accidents and traffic violations.
- To identify the high risk factors of young drivers.
- To make recommendations to reduce road accidents and traffic violations among young drivers to improve their driving and encourage them toward safe driving.

1.4 Significance of the Study

The enormous impact of road accidents on the lives, economy, and security of Saudi society has led the government and related organizations to take measures to reduce the size and severity of this phenomenon and the severity of its impact on society.

Young drivers predominate in the road accident statistics. Despite the availability of research on road accidents in Saudi Arabia, are rare those tackling the young driver's characteristics involved in the road accidents.

This study aims to evaluate the characteristics of young drivers involved in road accidents and traffic violations in the Dammam metropolitan area in Saudi Arabia, to suggest solutions and to make recommendations to enhance road safety among young and novice driver's.

CHAPTER 2

LITERATURE REVIEW

2.1 Young driver risks

The involvement of young or novice drivers in the RTAs is not a new problem. Many researchers have tackled this issue, its effects and the main factors beyond it in the recent decades around the world. A driver's age is one of the most significant variables associated with the road traffic accidents (WHO, 2004).

Many studies have confirmed that the RTA risk is a function of age (NHTSA, 2007). Crash rates are high risk among teenagers and older-aged drivers and lower among middle-aged drivers (NHTSA, 2007). In 2003, young drivers under 21 years old represented 13.8 percent of drivers involved in fatal crashes while they represented only 6.4 percent of all licensed drivers in the United States (NHTSA, 2005, Table 63).

Figure 2.1 shows that young drivers aged 16 to 25 years have the highest involvement in fatal crashes. They represent approximately double the number of adult drivers (NHTSA, 2009, Table 64).

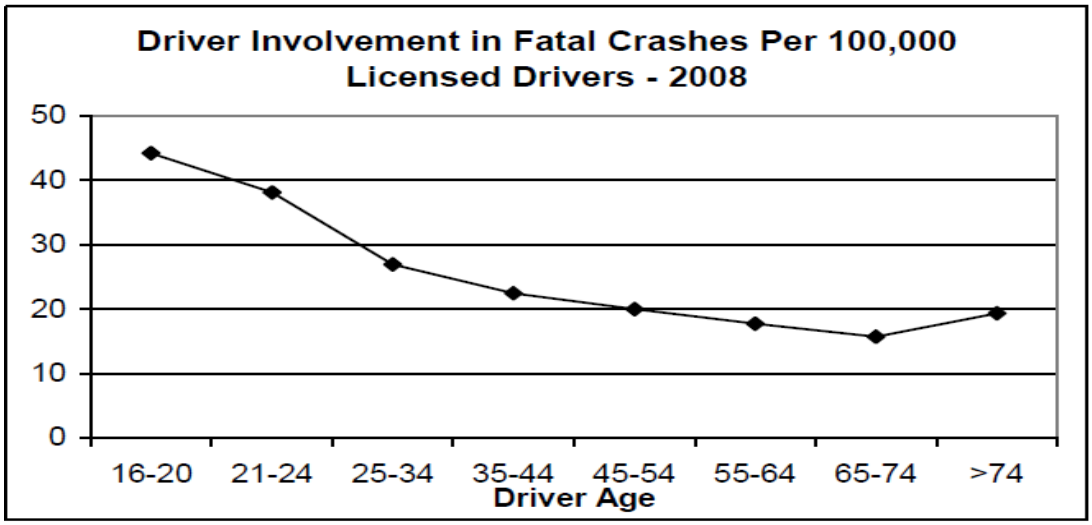

Figure 2.1 Traffic safety facts

Source: Traffic Safety Facts 2008 (NHTSA, 2009, Table 64)

Young drivers are poor at detecting, assessing, and responding to hazards according to a hazard perception test in Europe, New Zealand, Australia and Canada (NHTSA, 2011). Teenage drivers are involved the highest number of road accidents; they have higher levels of crash rate per mile traveled and per licensed drivers than drivers of the other ages. Moreover, young drivers have the highest fatal crashes per license drivers and per population between all drivers' ages except the very elderly drivers (Williams, 2003).

Young driver involvement in road accidents is a serious concern within Saudi Arabia. In 1999 there were 426,639 accidents on KSA roads, 10 percent (47,750 accidents) of the registered crashes involve young drivers less than 18 years old, and 28 percent (119,124 accidents) of the crashes involve drivers aged 18 to 30 years. Young drivers less than 30 years old involved in the road accidents represent about 40 percent (363,954 accidents) of all accidents (902,236 accidents) in KSA in 2008 (General

Directorate of Traffic, KSA, 1999 and 2008). Table 2.1 shows the accidents by driver's age for three years from 1431H-2010 to 1433H-2012 in the eastern province in KSA. The statistics for those three years show that younger drivers less than 18 years old involved in road accidents represent about 7.5 percent, and drivers aged between 18 to 30 years old represent about 40.2 percent of the total traffic accidents occurred from 2010 to 2012.

Table 2.1 Accidents by driver's age in the eastern province in KSA from 2010 to 2012

	Driver's age (years old)					
Year	<18	18 - 30	30 - 40	40 - 50	> 50	Total
1431H-2010	15475	74075	61254	29466	14423	194693
1432H-2011	13412	76712	58859	30020	12776	191779
1433H-2012	15838	94156	68567	32593	10568	221722

Source: General Directorate of Traffic Statistics, KSA, from (1431H-2010) to (1433H-2012)

There were some studies done about young drivers in Saudi Arabia; one of these studies was done in King Saud University. The study concludes that young drivers without a driver license (less than 18 years old, the legal age to own the driver license in KSA) involved in road accidents among surveyed drivers were 73 percent. The study indicated that there were a high percentage of traffic offenses and accidents among participants in the study (Al-Fouzan, 2004). Another study was carried out in the Al-Ahsa region to assess the traffic safety and awareness among young people at King Faisal University. Among the participants, 70 percent had had accidents as drivers. Also, the study showed that 78.9 percent had their first accident at between the ages of 15-19 (Gharaibeh et al., 2011).

2.2 Young driver characteristics as risk factors

2.2.1 Characteristics of young drivers

As documented in research in 2003 (Hedlund et al., 2003), young drivers have high crash risks due to two main reasons. First, they lack in experience, just learning to drive without paying much attention while they are driving. Safety considerations are often secondary matters for them. Young drivers do not have sufficient experience to be familiar with potentially risky situations and to react properly to control their vehicles in such situations. Second, immaturity is the other reason why young drivers are high risk. They don't have the ability to think ahead to potential harmful and risky situations and their consequences (Hedlund et al., 2003).

2.2.2 The young driver and risk-taking factors

Various driving behaviors seem to be risky and common for teen drivers. Young drivers have a propensity to speed, make illegal lane changes, follow vehicles too closely, and weave through traffic, putting themselves and others at risk (Shope, 2002). Young drivers are influenced by many other factors; these factors will be grouped into the following categories; personality characteristics, development factors, driving ability, demographic factors, perceived environment and driving environment (Shope, 2006). Shope discussed these categories in detail as represented in Table 2.2

Table 2.2 Factors that affect teen driving behavior

Risk factors	Risk factors
Driving ability - Knowledge - Skill - Experience **Personality factors** - Risk taking propensity - Hostility / aggressiveness - Susceptibility to peer pressure - Tolerance of deviance **Demographic factors** - Age, sex - Employment - Education - Living situation (parents) **Driving environment (physical and social)** - Night/dark - Weather and road conditions - Vehicle availability, play, interior - Passengers (age, sex, substance use) - Trip purpose	**Developmental factors** 1- Physical - Hormones - Energy - brain - sleep 2- Psychosocial - Emotional - social (identity, sexual) - Behavioral - Substance use, school grad **Perceived environment** - Parents' norms, behavior expectations - Parental involvement, monitoring - Peers' norms, behavior expectations - Partner's norms, behavior expectations - Community norms - Cultural norms - Media-advertising, entertainment - Risk perception

Source: Shope, J. T. (2006). Influences on youthful driving behavior and their potential for guiding interventions to reduce crashes.

2.3 Big five personality factors

Human error is considered a high risk major cause in road accidents. In a recent research study, driver's error in RTAs represents about 75 percent of the total (Cameron et al., 1993). So, "there is a body of empirical work exploring the links between personality traits and accident involvement" (Clarke et al., 2005a).

In the past two decades, the Big Five model of the taxonomy of personality has received the most attention and support among the psychologist researchers (Larsen et al., 2006; Saucier et al., 1996; Costa et al., 1995; McCrae et al., 1992). Several instruments have been developed to measure the Big Five dimensions of the person's personality (Larsen et al., 2006; Larsen et al., 2008; John et al., 2010). The most comprehensive instruments are Costa and McCrae (1992) 240-item NEO Personality Inventory, Costa and McCrae Revised NEO-PI-R (Costa el at,1992) cited by Gosling, 2003. For many research purposes, the NEO PI-R is lengthy and shorter instruments are usually preferred. 60-item NEO Five-Factor Inventory, 100 Trait Descriptive Adjectives (TDA) and Big Five Inventory (BFI) are three shorter instruments (Gosling et al., 2003).

Johen and Srivastava summarized the Big Five taxonomy traits in broad concepts as follows: I. Extraversion, II. Agreeableness, III. Conscientiousness, IV. Neuroticism, and. V. Openness to experience (John et al., 1999; John et al., 2008). The Big Five facets are shown in Table 3 according to Costa and McCrae (1992).

Due to the need for short components, efficient, flexible assessment and commonality across investigators of the Big Five factors, the Big Five Inventory (BFI 44-item) was constructed in 1991 (John et al., 1991) . Moreover, Johen and Rammstedt shortened the big five inventory of 44-item to 10-item version to reduce the participant's time (Rammstedt et al., 2007). Both versions of BFI 44-item and 10-item are shown in Appendix A. There are many advantages of brevity; as Burisch (1984) said "Short scales not only save testing time, but also avoid subject boredom and fatigue . . . there are subjects . . . from whom you won't get any response if the test looks too long" (Burisch, 1984) cited by John, 2008.

Table 2.3 Big Five Factors Facets

Big Five Factors	Facets
Neuroticism	Anxiety, hostility, self-consciousness, depression, impulsiveness, vulnerability and stress
Extraversion	Gregariousness, warmth, activity, assertiveness, excitement-seeking and positive emotions
Openness	Feeling, aesthetics, fantasy, values, action, and ideas
Agreeableness	Straightforwardness, trust, compliance, altruism, tender-mindedness and modest
Conscientiousness	Competence, striving, dutifulness, self-discipline, achievement and deliberation

The Big Five dimension of personality can be summarized as: (Atkinson et al., 2000) cited by Vazifehdoost et al., (2012).

Openness: "Appreciation for art, emotion, adventure, unusual ideas, curiosity, and variety of experience. Openness reflects the degree of intellectual curiosity, creativity and a preference for novelty and variety."

Conscientiousness: "A tendency to show self-discipline, act dutifully, and aim for achievement; planned rather than spontaneous behavior; organized, and dependable."

Extraversion: "Energy, positive emotions, assertiveness, sociability and the tendency to seek stimulation in the company of others, and talkativeness."

Agreeableness: "A tendency to be compassionate and cooperative rather than suspicious and antagonistic towards others."

Neuroticism: "The tendency to experience unpleasant emotions easily, such as anger, anxiety, depression, or vulnerability."

Dr. Arnout, Boshra, Umm Al-Qura University, translated the Big Five Inventory test published by John, Donahue, and Kentle (1991) into Arabic. In addition, she tested the BFI test in the Arab environment. The translated copy was shown and arbitrated by ten specialists. The test was forty four items long. After she evaluated the test items in the Arab environment, twelve items were discarded; therefore, the BFI test items in Arabic became thirty two instead of forty four items. For more details see Appendix C.

CHAPTER 3

RESEARCH METHODOLOGY

The nature of the study focuses on young drivers. The police records do not have enough data to meet the research objectives about young drivers involved in traffic accidents and violations. A questionnaire was designed to achieve the study purpose, involved two main parts. The first part includes a survey to identify: (1) the risk factors of young drivers involved in road accidents and violations in Dammam Metropolitan Area, and (2) the effects on their driving behavior of some new habits and fun driving among young drivers such as, drifting and wheeling, driving over sand dunes and video games. The second part of the survey includes a personality test; Big Five Inventory (BFI) test is used to identify the type of personality of participants and its association with accidents and traffic violations of the drivers.

A literature review was conducted in the areas related to the proposed research area to achieve the stated objectives. We divided the research into five tasks, as illustrated in Figure 3.1.

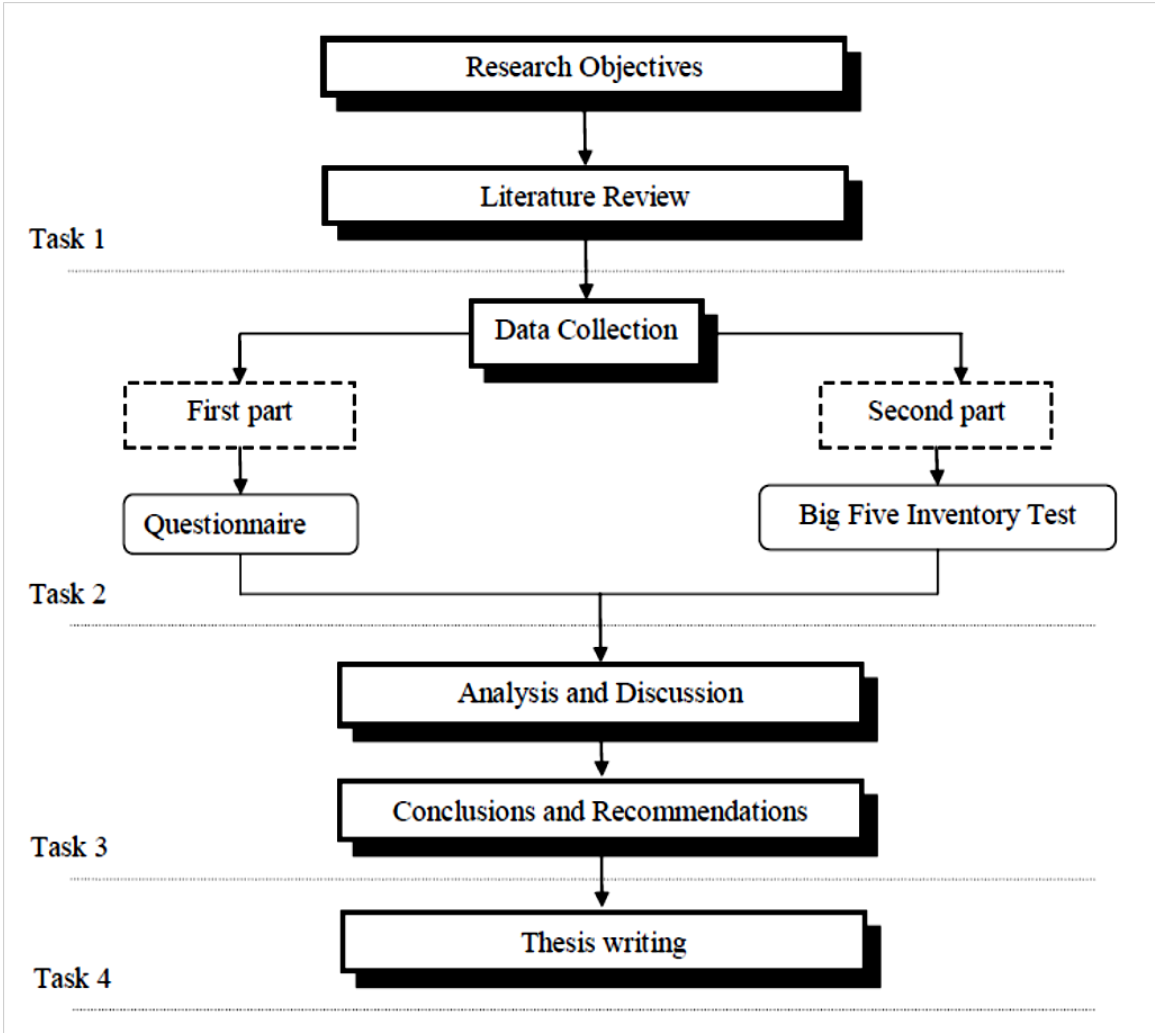

Figure 3.1 Research methodology summary

3.1 Study Area

This study was applied in the Dammam Metropolitan Area (includes Dammam, Dhahran, Khobar, Al Qatif, Safwa, and Ras Tanura) in the Eastern Province in the Kingdom of Saudi Arabia, as shown in Figure 3.2.

The study takes into account novice drivers only, so the survey was distributed to two groups only; the first group was the third level students of secondary schools in the study area and the second group was the preparatory year and freshmen students at universities and colleges in the region (includes all of the universities and colleges in the study area). The questionnaires were distributed to:

- King Fahd University of Petroleum and Minerals
- University of Dammam
- Dammam Community College
- Dammam College of Technology
- Prince Mohammad bin Fahd University
- Fifteen secondary schools randomly selected from the school list in the region.

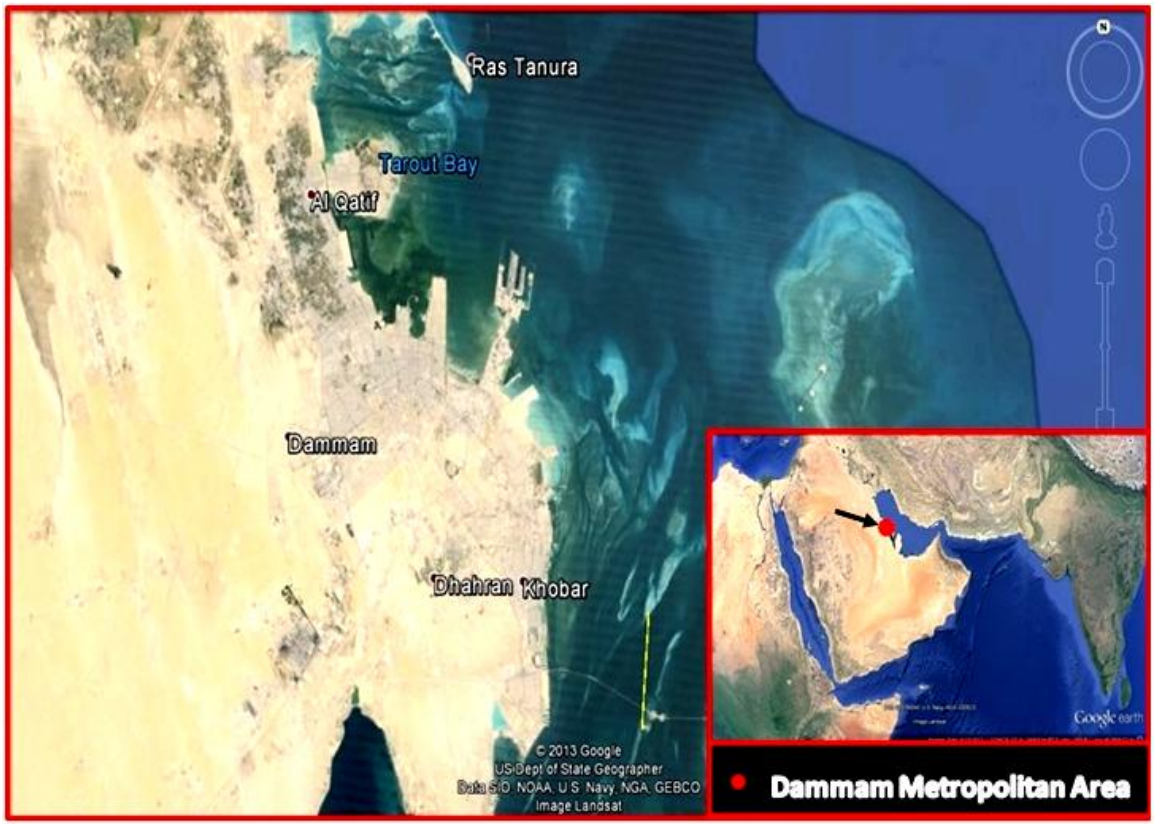

Figure 3.2 Study area (Dammam Metropolitan Area)

3.2 Data Collection

This section explains the data collection work for the survey of the research. In any research, the questionnaire is of great importance for it has to yield the raw material for the research. It is not an easy task to write good survey questions. Consequently, many surveys have questions with no feasible responses, questions with too many feasible responses, too many questions, vague instructions, and other flaws. This process was difficult, and required several iterations before a reasonably satisfactory set of variables were obtained. Our survey contains two main parts as follows:

The first part:

- Personal information
- Involvement in traffic violations
- Involvement in traffic accidents
- Risk factors, including fun driving and video games.

The second part:

The purpose of this section was to define the personality of the drivers involved in traffic accidents and violations, as mentioned previously. Big Five Inventory (BFI) Test is used in this study. BFI items were taken according to John, Donahue, and Kentle, 1991 in the English language (see Appendix B). Consequently, we looked for a copy of Big Five Inventory (BFI) test applied and tested in the Arab environment. After long communications with many specialists in psychology in order to get a proper copy of BFI, translated and tested in the Arab environment for use in this study, Dr. Arnout, Boshra, Umm Al-gura University, helped us. She sent us a translated copy prepared and tested by her, and this is used in this study. After she evaluated the test items in the Arab environment, twelve items were discarded; therefore, the BFI test items in the Arabic copy were reduced from 44 to 32 items. The copy translated by Dr. Arnout was showed to and arbitrated by ten specialists for more details (see Appendix C).

3.3 Questionnaire

The first step is to specify the purpose of the measurement. A pool of variables was prepared. A literature survey, expert opinions, focus group meetings and common sense were used to generate this list of items. This process was difficult, and required several iterations before a reasonably satisfactory set of variables were obtained; after rounds of review and analysis, the final list of variables are listed in the questionnaire as shown in Appendix A. The questionnaire has four sections, which were designed to achieve the research objectives as follows.

3.3.1 General information

In this section, the driver was asked to provide general information including his nationality, age, whether he possessed a driver license, his age when he first drove a car, and how he learned to drive. Moreover, in this section the driver was asked about practice driving over sand dunes, practice drifting and wheeling driving, practice motorcycle riding and playing car video games (see Appendix A).

3.3.2 Traffic violations

This part of the questionnaire contains information about traffic violations. In this section, the driver was asked about his involvement in traffic violations. The number of traffic violations committed by the drivers, the causes of these violations and their obedience to traffic regulations (see Appendix A).

3.3.3 Traffic accidents

This part of the questionnaire contains information about traffic accidents. The driver in this section was asked about his involvement in traffic accidents; the number of traffic accidents involved, where the drivers were involved, and the cause of these accidents. Furthermore, the driver was asked whether his seat belt was fastened at time of the accident, the purpose of the trip, who were the passengers and the extent of damage (see Appendix A).

3.3.4 Big Five Inventory test

The last section in the questionnaire contains the Big Five Inventory (BFI) test items. The purpose of this section was to identify the personality of the drivers involved in the road accidents and traffic violations as mentioned previously (see Appendix C).

3.4 Sample Size

The questionnaires were distributed to the young drive selected randomly from the universities, colleges and secondary schools in the studied area. The sample size was calculated using the following formula.

$$\mathrm{N} = pq\left(\frac{\mathrm{Z}\propto_{/2}}{d}\right)^2$$

Where,

N: Sample size having 95% confidence level.

$\mathrm{Z}\propto_{/2} = 1.96$ at 95% confedence level

d *is acceptibal error*

P is the sample proportion and,

q is (1-P) is the proportion of the sample in which the characteristic does not appear.

The sample size was based on the assumption that 50% of the samples involved in the traffic accidents (traffic accidents considered as estimate factor in the study) to give us the largest sample size. So, p = q = 0.5.

The sample size required for this study is 385 samples as calculated below, using the formula as stated previously.

$$N = 0.5 * 0.5 \left(\frac{1.96}{0.05}\right)^2 = 385$$

In this study 610 copies of the survey were distributed, 59 copies were rejected due to illogical or incomplete answers. As a result, 551 copies were used and analyzed in the research.

3.5 Methodology for analyzing

After collecting the data from the distributed questionnaires, these data were verified and coded. Then, the data were entered into the database using an Excel sheet. The data were analyzed descriptively and statistically using Microsoft Excel and SPSS statistical package respectively.

The collected data were analyzed statistically by setting up several hypotheses. The hypotheses were used to test the relationship between some variables and the young driver's involvement in the traffic accidents and traffic violations by using contingency tables. Also, another set of hypotheses depending on the mean score difference to identify the drivers' personality and his involvement in road accidents and traffic violations was applied. Two types of statistical analysis were used in the research as follows:

The Chi squared test of independence is used to examine the relationship between two discrete variables. The hypotheses were rejected if the calculated value of the χ^2 was greater than the tabulated value, where $\alpha = 0.1$ and v = degree of freedom or if the P-value is less than 0.1 (90% confidence level). In the χ^2 analyses, the null hypotheses generate frequencies against which observed frequencies are tested. If the observed frequencies are similar to the expected frequencies, then the value of χ^2 is small and the null hypothesis is retained; if they are sufficiently different, the value of χ^2 is large and the null hypothesis is rejected. To find out which variable has the biggest contribution in the difference, the chi-square for each variable was compared with the tabulated value

(2.71). In the chi-square statistical analysis “no more than 20% of the expected counts are less than 5 and all individual expected counts are 1 or greater” (Yates, Moore & McCabe, 1999).

The t-test for independent samples is used to determine whether the means of two groups are significantly different (Randolph et al., 2013). The t-test for two independent samples was used to test the difference between the mean scores of Big Five Inventory factors which include the five main factors (Extraversion, Agreeableness, Conscientiousness, Neuroticism and Openness) for both drivers involved in road accidents and those who were not involved in any accidents. Also, the test was used for the drivers involved in traffic violations and those who were not involved in any traffic violations. The test was based on the assumption that the variance is unknown.

3.6 Limitations

Dealing with young people was not an easy task. Hence, some difficulties and limitations were faced in the study. The most important limitations in the research are as follows:

There was a lack of raw data in detail about young drivers involved in road accidents and traffic violations. Therefore, we depended mainly on the data collected for the study through the questionnaire. In view of that, the survey was a little bit long to cover the research objectives. In other words, the questionnaire alone provided the raw materials for this research.

Teenagers sometimes can be careless and not always truthful when filling out a survey. Consequently, many copies of the survey were cancelled because of illogical or incomplete answers. To avoid this, we have to hold interviews instead of distribution survey, but it would be a difficult task.

Non-educated young drivers were not involved in the research. The questionnaires were distributed in the universities, colleges and secondary schools in the studied area. But we think that this group represents a very small percentage of young drivers.

Big Five Inventory (BFI) test items are open to misinterpretation and confusion for some of the participants. It is too difficult to illustrate the items for each participant. So, in this section of the survey, many of the participants did not complete the BFI items. As a result of that, 127 copies were cancelled in this section and the analyses were carried out for 424 copies instead of 551 copies of the rest of the study. This did not adversely affect the survey results as the remaining copies offered more than the requisite sample size. Also, the copies were distributed among different ages, very similar to the age groups used in other sections of the research.

CHAPTER 4

RESULTS AND DISCUSSION

In this section, descriptive and statistical analyses of the collected data about young drivers in the region are shown. The analyses include traffic accidents and violations of the young drivers in the studied area. Different sub-sections are included in this section, such as traffic accidents, traffic violations, the effect of the driver's physical factors, risk factors and the driver's personality.

4.1 Descriptive and statistical analysis

As previously mentioned in the research methodology, questionnaires were taken by young drivers in the study area. The data collected from the questionnaires are analyzed descriptively and analytically based on some hypotheses. These hypotheses are used to test the relationship between some variables and involvement of the young drivers in traffic accidents and violations by using statistical contingency tables. Descriptive and statistical analyses are discussed in this section respectively, for all sub-sections included in the study.

4.1.1 Descriptive analysis

In this section, the collected data from the questionnaire are analyzed descriptively. Many sub-sections are included in this section including traffic accidents, traffic violations, physical factors, risk factors and driver's personality for all drivers participating in the study. Moreover, some important information about young drivers surveyed in the research is included such as nationality, age, etc.

4.1.1.1 Nationality

The analysis purpose of this section was to illustrate the nationality percentage of young drivers involved in the research and their numbers. The analyses are presented in Table 4.1 and Figure 4.1.

Table 4.1 Nationality, number and percentage of young drivers

Nationality	Number	Percentage
Saudi	**488**	**88.57**
Non Saudi	**63**	**11.43**
Total	**551**	**100**

Most of the surveyed young drivers were Saudi nationals; they represented 89 % while other non-Saudi represented 11% only.

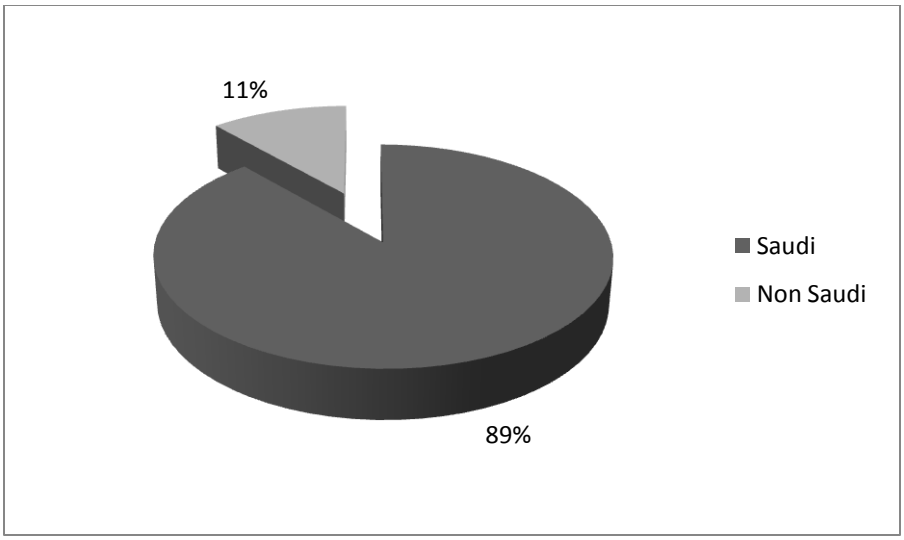

Figure 4.1 Percentage of nationalities

4.1.1.2 Driver's age

The analysis purpose of this section was to illustrate the percentage of young drivers involved in the research. The illustrations of the analysis are presented in Table 4.2 and Figure 4.2

Table 4.2 Drivers' age

Age	Number	Percentage
Age <18	129	23.41
Age (18 - 21)	402	72.96
Age (22 - 26)	20	3.63
Total	551	100

All the drivers participating in the questionnaire were aged between 16 to 26 of whom 73% 18 to 21 years old, 23% were less than 18 years old and about 4% only more than 21 years old.

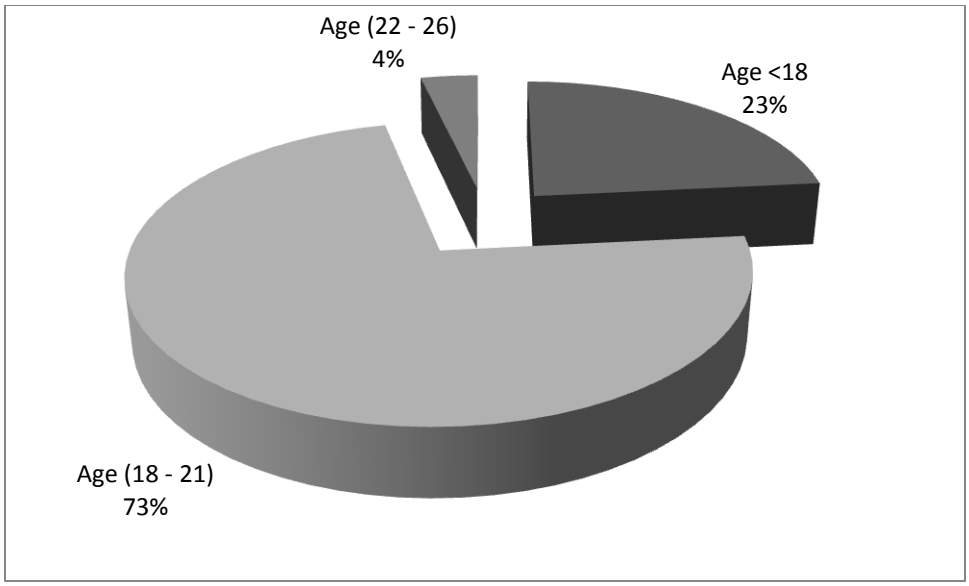

Figure 4.2 The percentages of the drivers' ages

4.1.1.3 Traffic accidents involved

The analysis purpose of this section was to illustrate the number and the percentage of accidents which young drivers are involved. The illustrations of the analysis are presented in Table 4.3 and Figure 4.3.

Table 4.3 Number and percentages of traffic accidents involved

Traffic accidents	Number	Percentage
Yes	**304**	**55.17**
No	**247**	**44.83**
Total	**551**	**100.00**

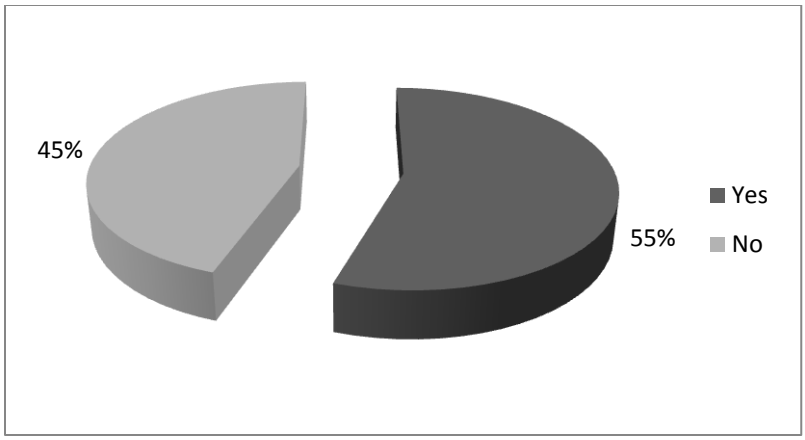

Figure 4.3 Traffic accidents percentages involved by surveyed young drivers

As shown in Figure 4.3, 55% of the young drivers surveyed in this research were involved in road accidents. At least one traffic accident was involved by 55% of the young drivers participating in this research. Traffic accidents which young drivers are involved by young drivers surveyed reached 4 accidents per year for some of them, as shown in the following section.

4.1.1.4 Number of traffic accidents involved

The analysis purpose of this section was to illustrate the number of traffic accidents in which young drivers are involved. The illustrations of the analysis are presented in Table 4.4 and Figure 4.4.

Table 4.4 Number of traffic accidents in which young drivers are involved

No. of traffic accidents	Number	Percentage
1 to 2	223	73.40
3 to 4	68	22.30
More than 4	13	4.30
Total	304	100

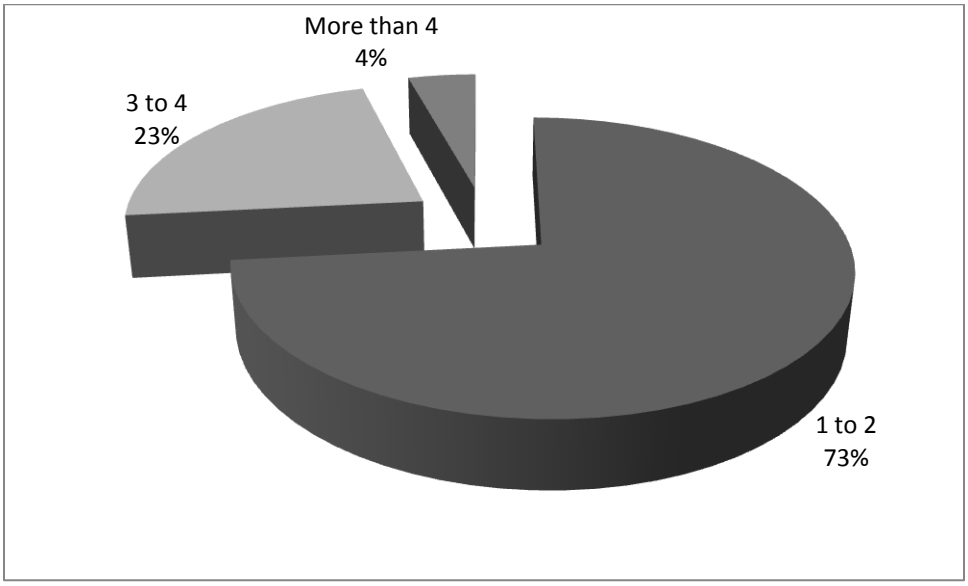

Figure 4.4 The percentages of number accidents involved

4.1.1.5 Traffic accidents per year

The analysis purpose of this section was to illustrate the annual toll of traffic accidents where young drivers are involved in the study area. Accident per year is considered as an index used to eliminate the variation in years of driving experience among young drivers surveyed in this research. The illustrations of the analysis are presented in Table 4.5 and Figure 4.5.

Table 4.5 Traffic accidents per year involved

Accidents per year	Number	Percentage
≥ 3	7	2.30
≤ 2	26	8.60
≤ 1	271	89.10
Total	304	100.00

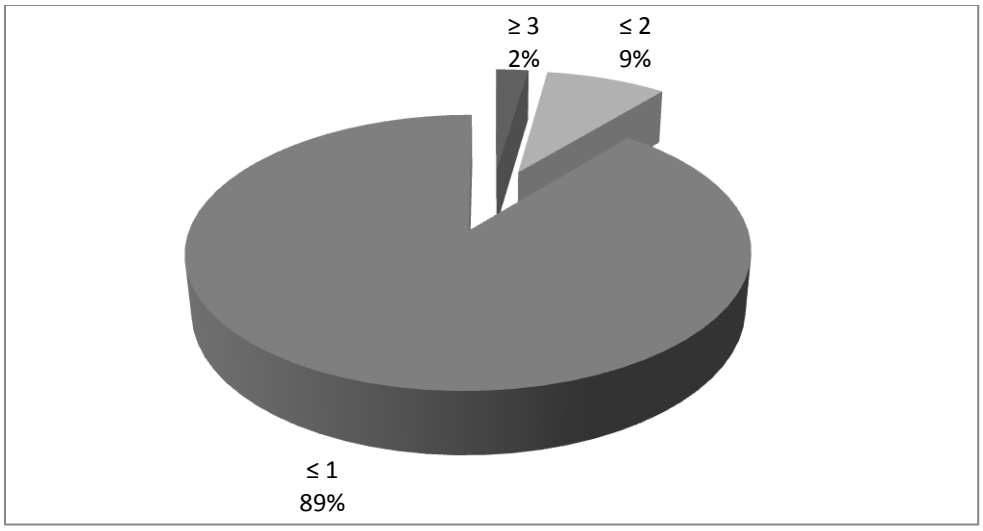

Figure 4.5 Traffic accidents per year involved percentages

As mentioned previously, 55% of the young drivers surveyed in this research were involved in road accidents. 73% of them were involved in 1 to 2 accidents, 23 % of them were involved in 3 to 4 accidents and 4 % of them were involved in more than 4 accidents, as shown in Figure 4.4. Surprisingly, the traffic accidents involvements by some of the young drivers in this research reached 4 accidents per year, as shown in Figure 4.5.

4.1.1.6 Causes of traffic accidents

The analysis purpose of this section was to illustrate the causes of traffic accidents in which young drivers are involved. The illustrations of the analysis are shown in Table 4.6 and Figure 4.6.

Table 4.6 Causes of traffic accidents

causes of traffic accidents	Number	Percentage
Speeding	**93**	**25**
Red Signal	**11**	**2.96**
Overtaking	**54**	**14.51**
Using Mobile	**43**	**11.56**
Recklessness	**10**	**2.69**
Sleeping	**7**	**1.88**
Inattention and Distraction	**27**	**7.26**
Others	**127**	**34.14**
Total	**372**	**100**

The most common causes of traffic accidents among young drivers were speeding 25%, red signal 3%, overtaking 14.5% using mobile 11.7 %, recklessness 2.7%, taking a sleep at the wheel 1.9%, inattention and distraction 7.3% and others, as shown in Figure 4.6. Speeding represented the highest percentage cause of traffic accidents among young drivers.

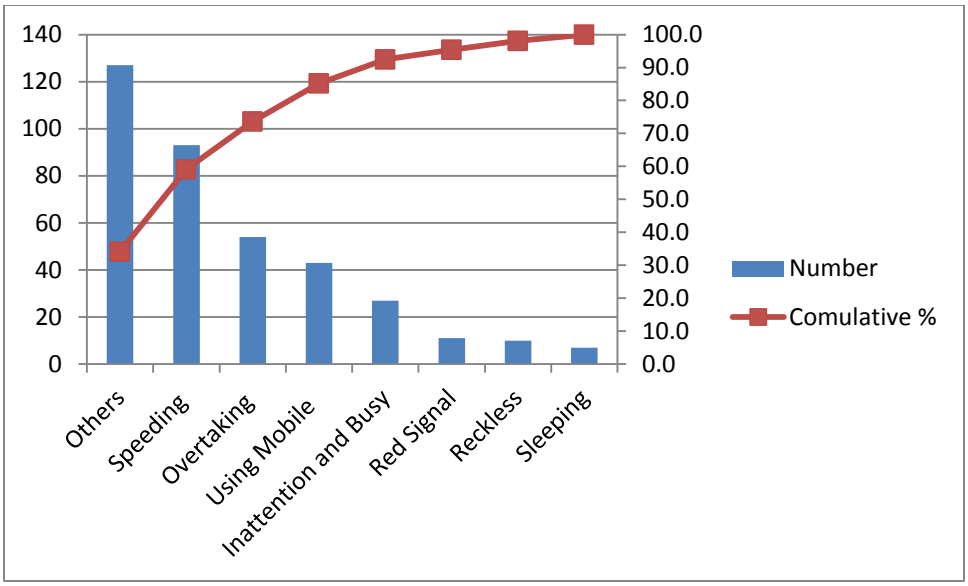

Figure 4.6 Causes of traffic accidents percentages

4.1.1.7 Age starting to drive

- **First: for all drivers**

The analysis purpose of this section was to illustrate the age when starting to drive for all drivers surveyed in the research. The illustrations of the analysis are presented in Table 4.7 and Figure 4.7.

Table 4.7 Age at starting to drive for all drivers surveyed

Age starting to drive	Number	Percentage
Age < 14	**87**	**15.79**
Age (14 – 17)	**415**	**75.32**
Age (18 – 21)	**49**	**8.89**
Total	**551**	**100**

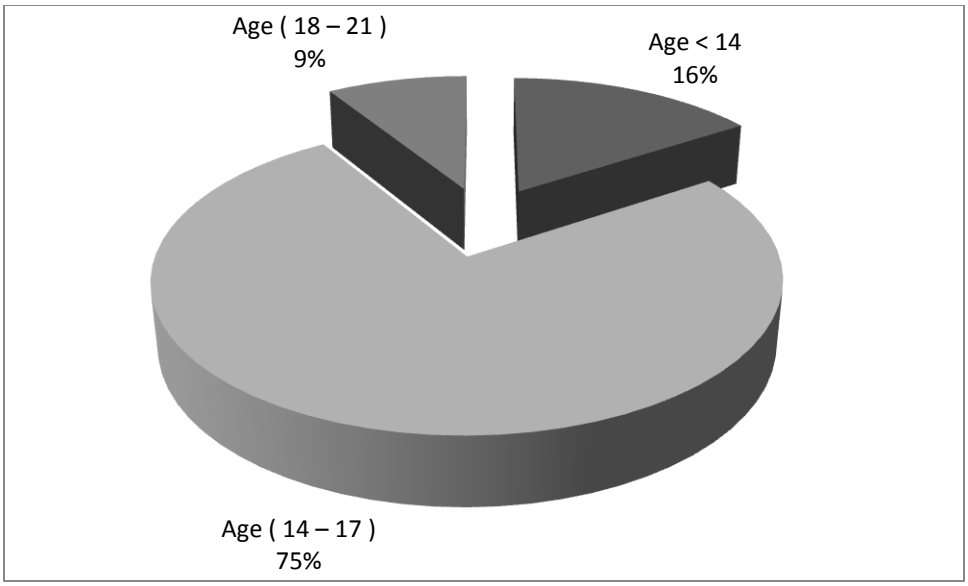

Figure 4.7 Age at starting to drive for all drivers surveyed

75% of the young drivers participating in the study began driving at the age of between 14 and 17, while 16% of them started earlier at the age of 14 or less, and a few of them began very early at the age of less than 10, and about 9% only of the drivers started after they had reached 18. Hence, most the young drivers surveyed in this research began driving before the legal age for possessing a drivers' license, as show in Figure 4.7. Figure 4.8 shows the drivers involved in road accidents according to their ages when they started. The percentage increased to 20% for the drivers who began driving before they were 14, while it decreased for the drivers who began driving after they had reached 14 years old.

- **Second: for drivers involved in road accidents only**

The analysis purpose of this section was to illustrate the age when young drivers involved in road accidents started driving. The illustrations of the analysis are shown in Table 4.8 and Figure 4.8.

Table 4.8 Age at starting to drive for the drivers involved in road accidents

Age at start car driving	Number	Percentage
Age < 14	**62**	**20.39**
Age (14 – 17)	**220**	**72.37**
Age (18 – 21)	**22**	**7.23**
Total	**304**	**100**

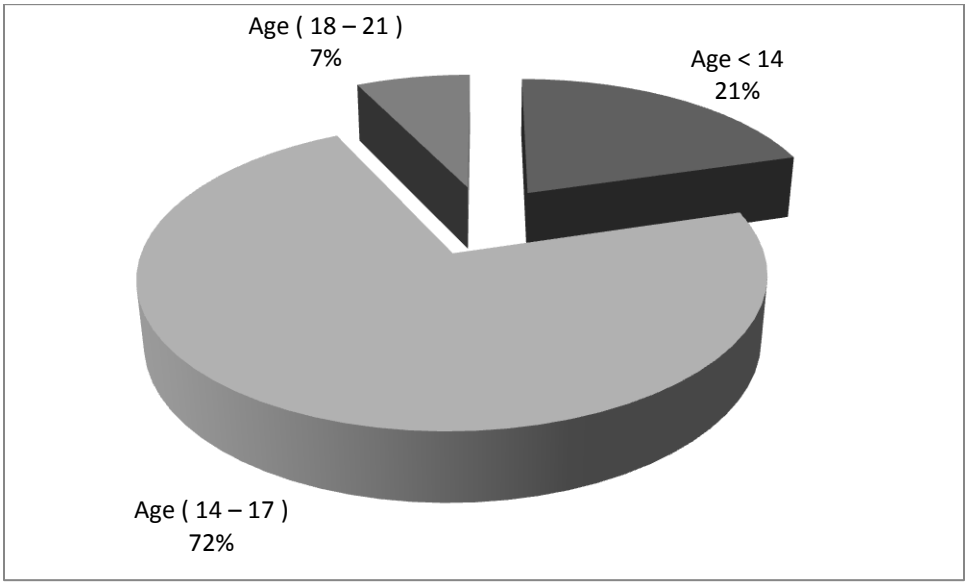

Figure 4.8 Age at start car driving for the drivers involved in the road accidents

4.1.1.8 Possessing driver's license

- **First: for all drivers**

The analysis purpose of this section was to illustrate how many young drivers in the research involved in road accidents possessed a driving license. The illustrations of the analysis are shown in Table 4.9 and Figure 4.9.

Table 4.9 Possessing driver's license for all drivers surveyed

Possessing driver's license for all drivers	Number	Percentage
Yes	302	54.80
No	162	29.40
Permission	87	15.80
Total	551	100

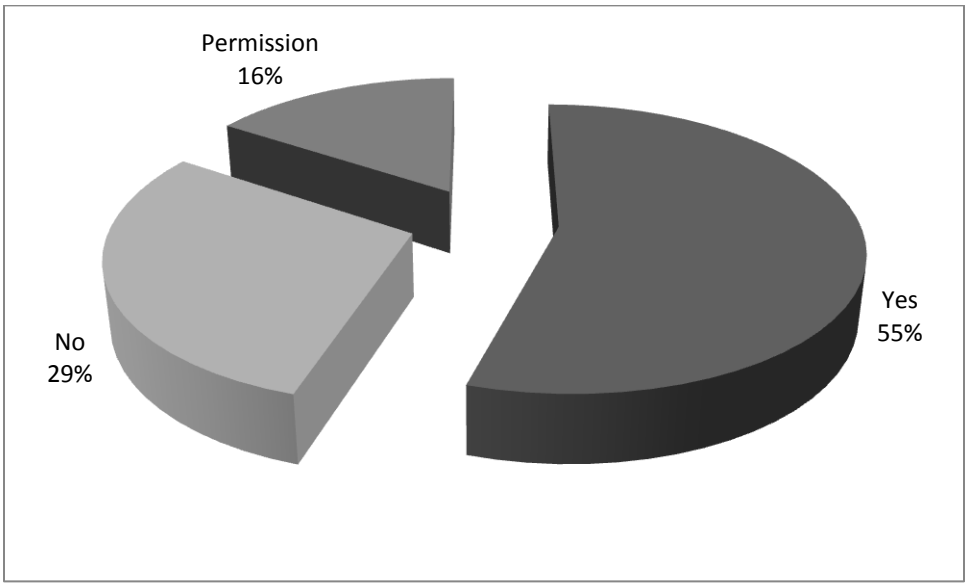

Figure 4.9 The percentages of Possessing driver's license for all drivers surveyed

- **Second: for the drivers involved in road accidents only**

The analysis purpose of this section was to illustrate which young drivers in the research involved in road accidents possessed a driving license. The illustrations of the analysis are presented in Table 4.10 and Figure 4.10.

Table 4.10 Possessing driver's license for drivers involved in road accidents

Possessing driver's license	Number	Percentage
Yes	189	62.17
No	63	20.72
Permission	52	17.11
Total	304	100

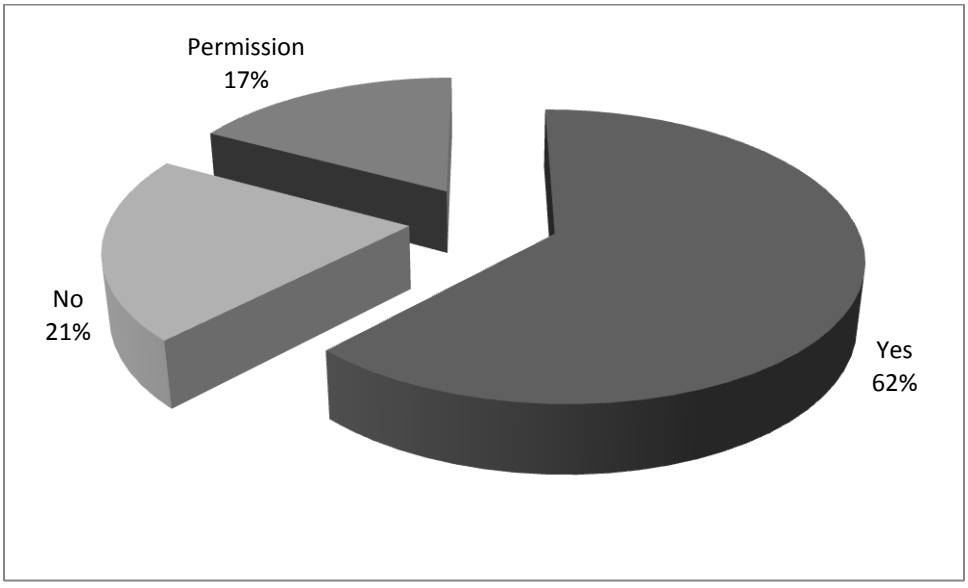

Figure 4.10 Percentages of Possessing driver's license for drivers involved in road accidents

55% of the surveyed drivers who are involved in the traffic accidents in this research have a driver's license, while 16% of them have a driver's permit and 29% of them did not have a driver's license, as shown in Figure 4.9. It seems that drivers

who have a driver's license were more often involved in road accidents, their percentage increasing from 55% to 62%, but this is was a misleading area of the survey because we don't know if they had the accidents before they got the driver's license or after they got it, as shown in Figure 4.10. So, we can't say that the drivers who have a driver's license were more often involved in road accidents. The significance of the relationship will be tested in the statistical analysis section.

4.1.1.9 Learning how to drive

- **First: for all drivers**

The analysis purpose of this section was to illustrate how young drivers surveyed in this study learned to drive the car. Did they learn how to drive from their fathers, their brothers, their friends, driving school, etc. The illustrations of the analysis are presented in Table 4.11 and Figure 4.11 for all drivers in the research.

Table 4.11 Learning how to drive for all drivers surveyed

Learning how to drive	Number	Percentage
Father	**307**	**55.72**
Brother	**100**	**18.15**
Friend	**28**	**5.08**
Driving school	**56**	**10.16**
Others	**60**	**10.89**
Total	**551**	**100**

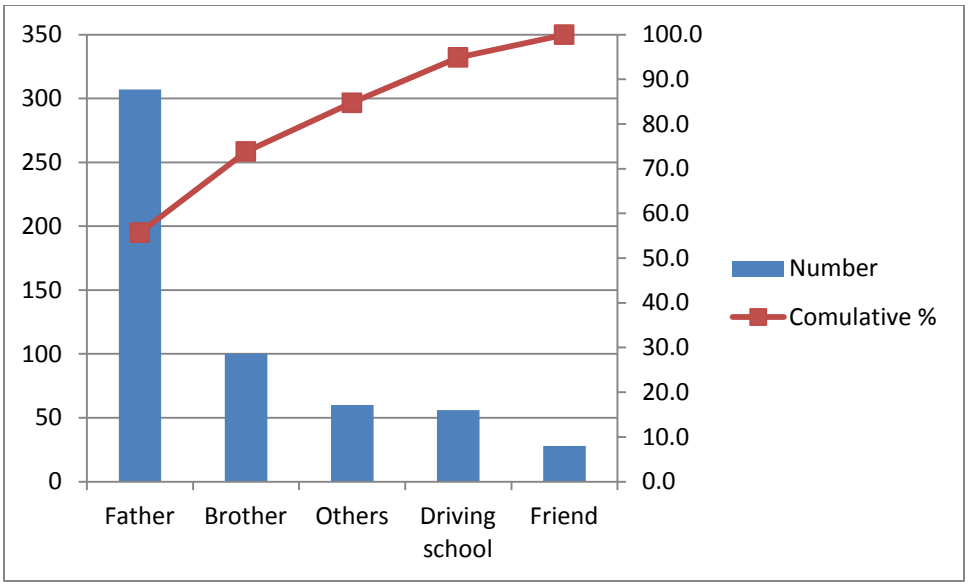

Figure 4.11 Learning how to drive for all drivers (percentages)

- **Second: for drivers involved in road accidents only**

The analysis purpose of this section was to illustrate how young drivers involved in road accidents learned to drive. Did they learn how to drive from their fathers, their brothers, their friends, driving school, etc. The illustrations of the analysis are shown in Table 4.12 and Figure 4.12 for drivers involved in road accidents only.

Table 4.12 Learning how to drive for drivers involved in road accidents only

Learning how to drive	Number	Percentage
Father	**173**	**56.9**
Brother	**55**	**18.09**
Friend	**14**	**4.61**
Driving school	**30**	**9.87**
Others	**32**	**10.52**
Total	**304**	**100**

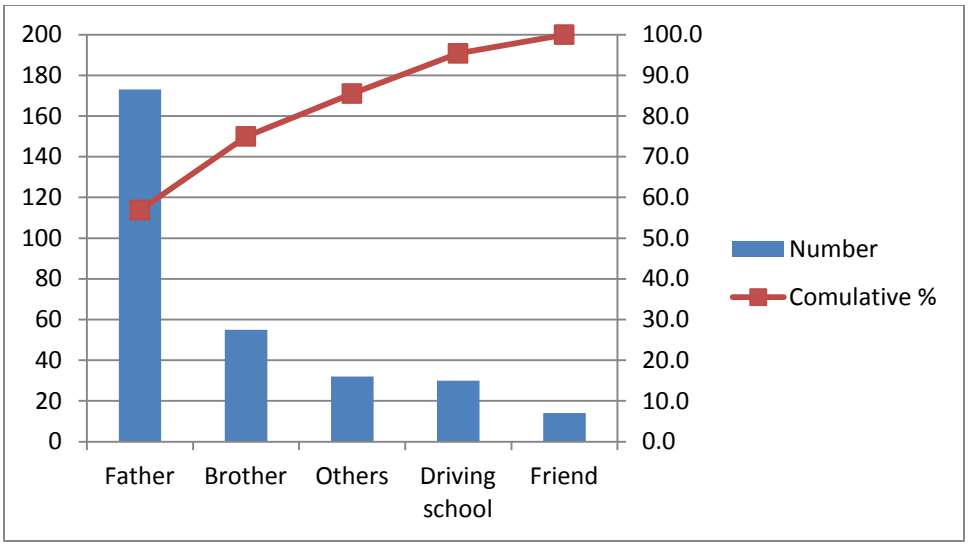

Figure 4.12 Learning how to drive for drivers involved in road accidents only (percentages)

Most of the young drivers surveyed in the research learnt how to drive from their fathers and brothers. 56% of them learnt how to drive from their fathers, 18% of them learnt how to drive from their brothers and 5% of them learnt how to drive from their friends, while only 10% of them learnt in the driving schools, as shown in Figure 4.11. It seems there is no clear difference in a driver's involvement in road accidents according to how he learned to drive, as shown in Figure 4.12. The significance of the relationship will be tested in the statistical analysis section.

4.1.1.10 Car video games

- **First: for all drivers**

The analysis purpose of this section was to illustrate whether there is a relationship between playing car video games and traffic accidents caused by young drivers who were surveyed in the study. The illustrations of the analysis are shown in Table 4.13 and Figure 4.13 for all drivers in the research.

Table 4.13 Car video games play for all drivers

Car video games play	Number	Percentage
At child age	184	33.39
Now	18	3.27
Now and at child age	266	48.28
Never	83	15.06
Total	551	100

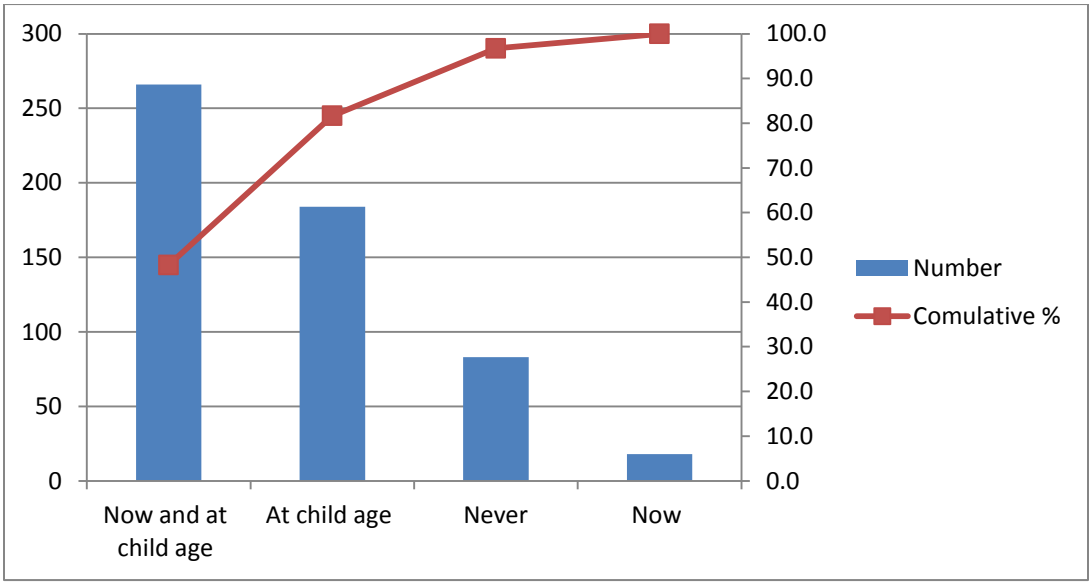

Figure 4.13 Car video games play percentages for all drivers

The approximate hours spent in playing car video games per week for all drivers are shown in Table 4.14 and Figure 4.14.

Table 4.14 Spent hours playing car video games per week for all drivers

Spent hours playing car video games per week	Number	Percentage
(1 to 4) hours	366	66.42
(5 to10) hours	59	10.71
>10 hours	39	7.08
Never	87	15.79
Total	551	100

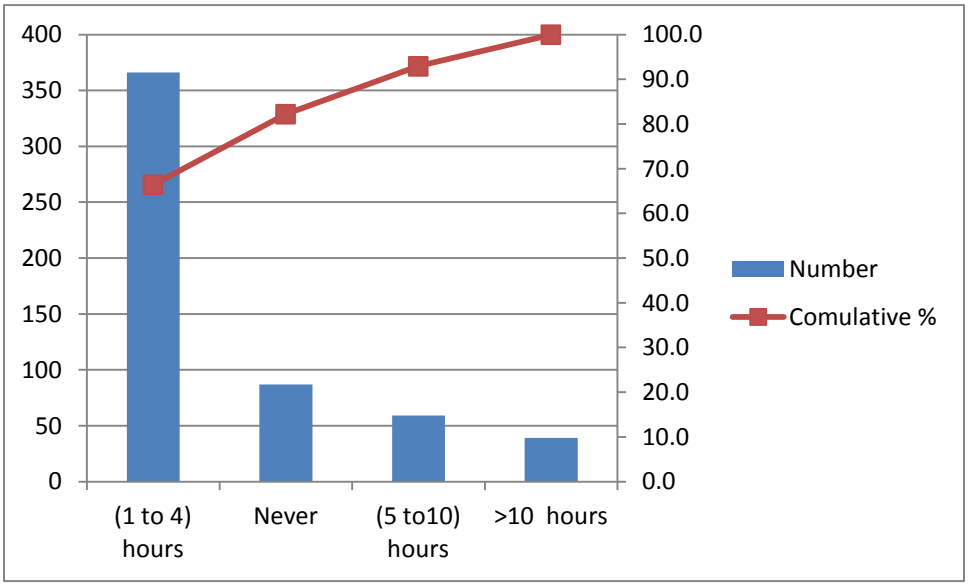

Figure 4.14 Spent hours playing car video games per week for all drivers (percentages)

- **Second: for drivers involved in road accidents only**

The analysis purpose of this section was to illustrate whether there is a relationship between playing car video games and traffic accidents caused by young drivers who were surveyed in the study for drivers involved in the traffic accidents

only. The illustrations of the analysis are shown in Table 4.15 and Figure 4.15 for drivers involved in road accidents only.

Table 4.15 Car video games play for drivers involved in road accidents only

car video games play	Number	Percentage
At child age	**100**	**32.89**
Now	**14**	**4.61**
Now and at child age	**147**	**48.36**
Never	**43**	**14.14**
Total	**304**	**100**

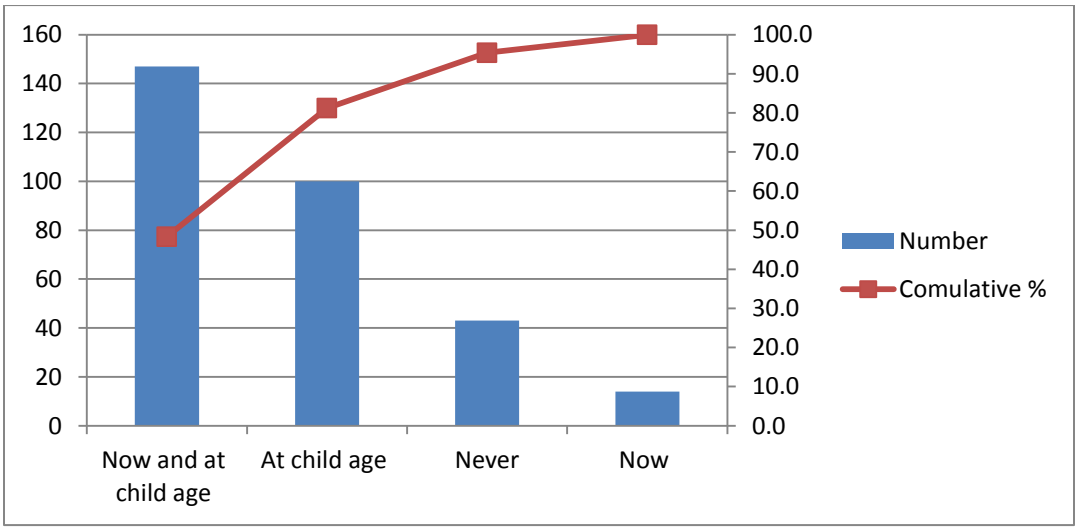

Figure 4.15 Car video games play for drivers involved in road accidents only

The approximate hours spent in playing car video games per week for drivers involved in road accidents only are shown in Table 4.16 and Figure 4.16.

Table 4.16 Spent hours playing car video games per week (drivers involved in road accidents only)

Spent hours playing car video games per week	Number	Percentage
(1 to 4) hours	195	64.15
(5 to10) hours	35	11.51
>10 hours	28	9.21
Never	46	15.13
Total	304	100

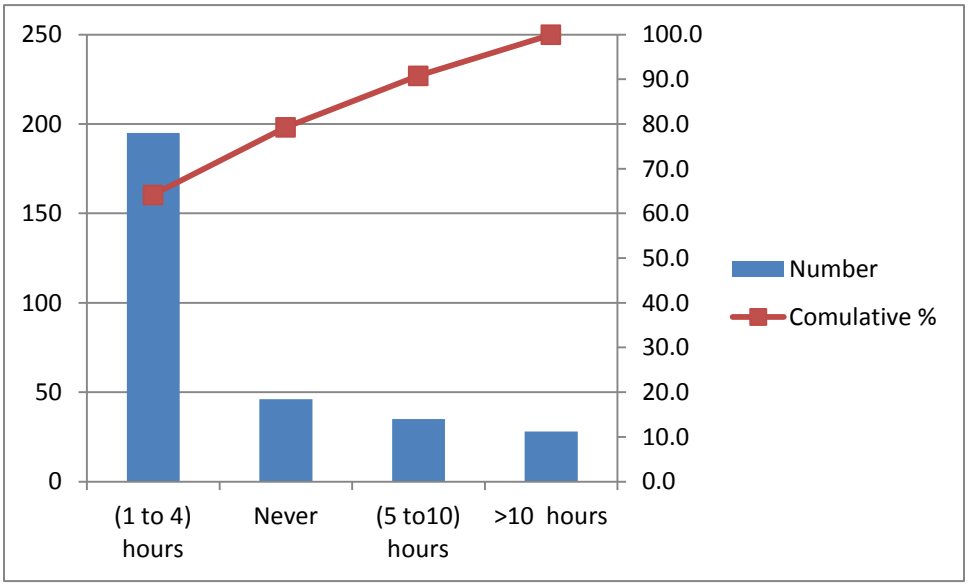

Figure 4.16 Spent hours playing car video games per week (drivers involved in road accidents only)

It seems that there was no clear effect of playing car video games on the young drivers surveyed in the research and their involvement in traffic accidents, as shown in Figures (4.13 through 4.16). The significance of the relationship will be tested in the statistical analysis section. But it is clear more than 85% of them play car video games and spend at least 1 to 4 hours per week. So, car video games can be

used to teach youth and teens some basic rules of safe driving and the traffic regulations by encourage them to use video games supported such skills.

4.1.1.11 Car and motorcycle games

- **First: for all drivers**

The analysis purpose of this section was to illustrate whether there is a relationship between practicing car and motorcycle games among young drivers participating in the study and the traffic accidents caused. The illustrations of the analysis are shown in Table 4.17 and Figure 4.17 for all drivers in the research.

Table 4.17 Car and motorcycle games practice for all drivers

Car and motorcycle games practice	Number	Percentage
At child age	**292**	**52.99**
Now	**11**	**2**
Now and at child age	**137**	**24.86**
Never	**111**	**20.15**
Total	**551**	**100**

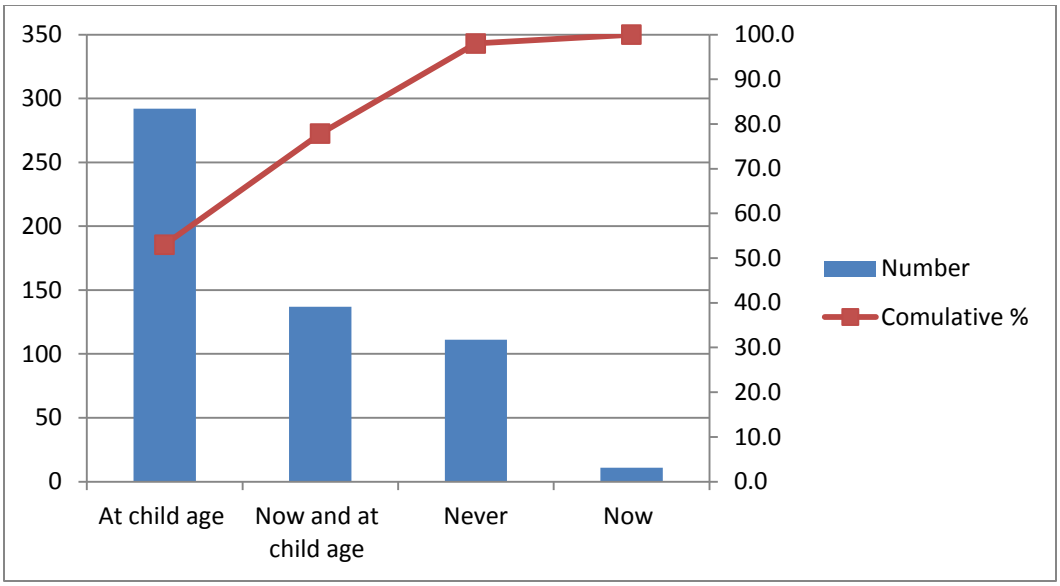

Figure 4.17 Car and motorcycle games practice for all drivers (percentages)

The approximate hours spent in playing car games and motorcycle games per week for all drivers are shown in Table 4.18 and Figure 4.18.

Table 4.18 Spent hours playing car games and motorcycle per week for all drivers

Spent hours playing car and motorcycle games per week	Number	Percentage
(1 to 4) hours	358	64.97
(5 to10) hours	50	9.08
>10 hours	26	4.72
Never	117	21.23

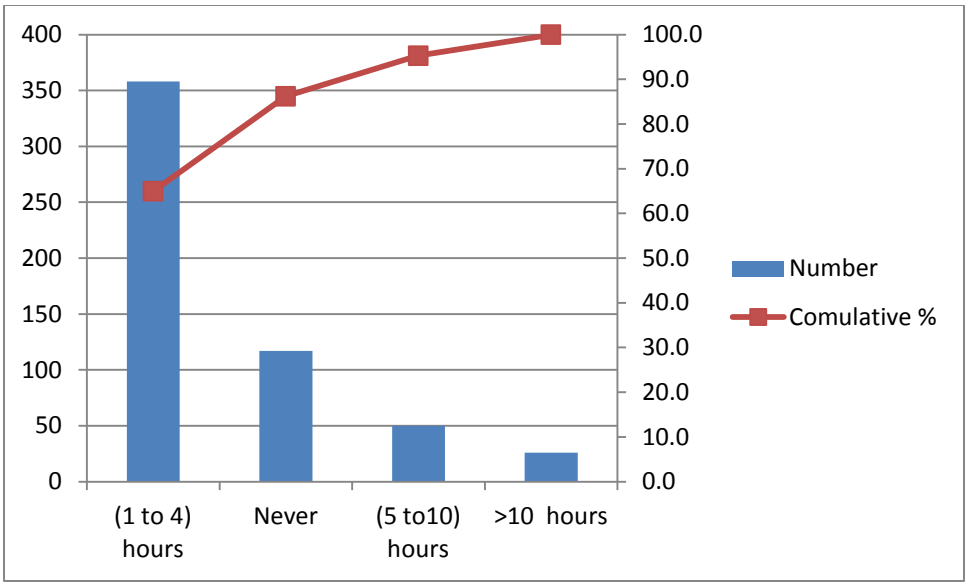

Figure 4.18 Spent hours playing car games and motorcycle per week for all drivers

- **Second: for drivers involved in road accidents only**

The analysis purpose of this section was to illustrate whether there is a relationship between playing car and motorcycle games among young drivers participating in the study and the traffic accidents for drivers involved in traffic accidents only. The illustrations of the analysis are shown in Table 4.19 and Figure 4.19 for drivers involved in road accidents.

Table 4.19 Car and motorcycle games practice for drivers involved in road accidents only

Car and motorcycle games practice	Number	Percentage
At child age	100	32.89
Now	14	4.61
Now and at child age	147	48.36
Never	43	14.14
Total	304	100

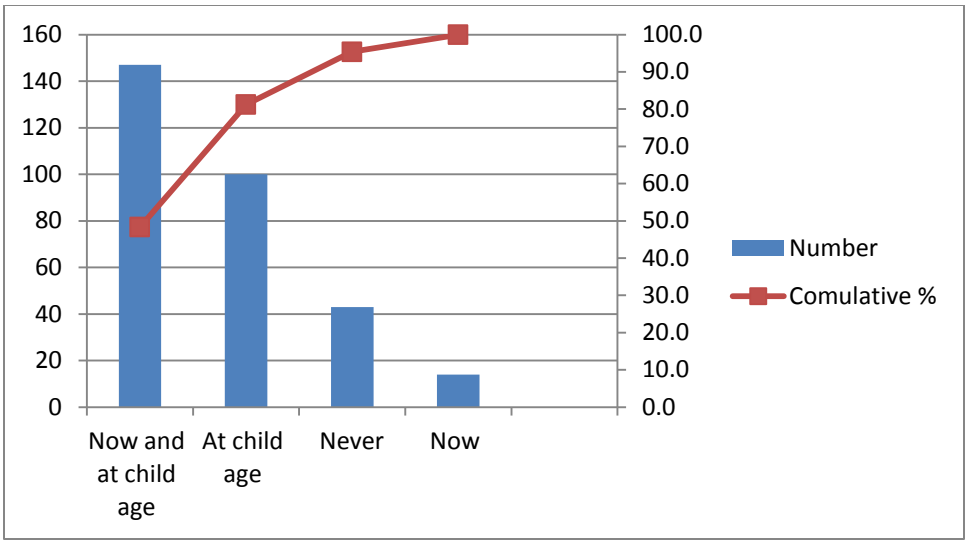

Figure 4.19 Car and motorcycle games practice for drivers involved in road accidents only

The approximate hours spent in playing car games and motorcycle games per week for drivers involved in road accidents only are presented in Table 4.20 and Figure 4.20.

Table 4.20 Spent hours playing car and motorcycle games per week for drivers involved in the road accidents

Spent hours playing car and motorcycle games per week	Number	Percentage
(1 to 4) hours	195	64.14
(5 to10) hours	30	9.87
>10 hours	18	5.92
Never	61	20.07
Total	304	100

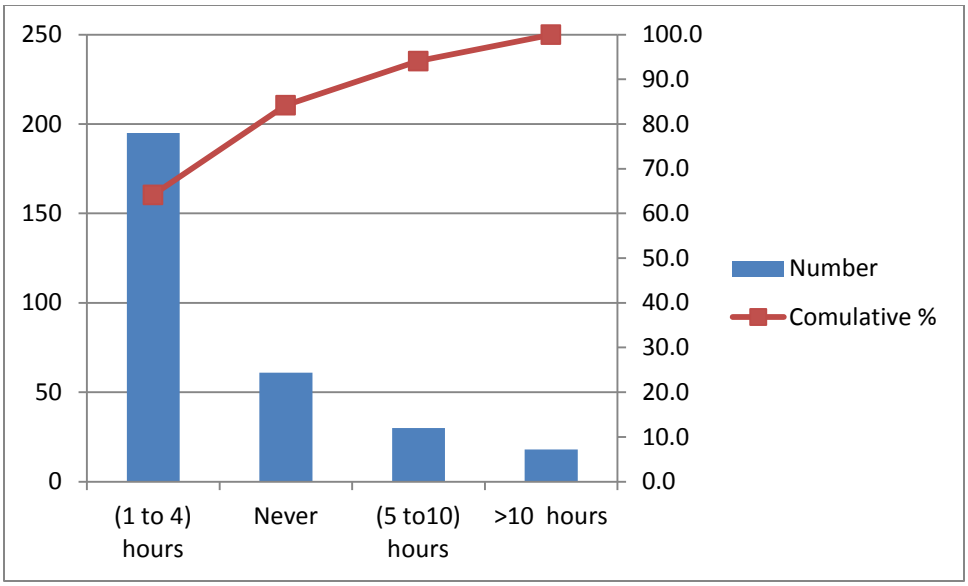

Figure 4.20 Spent hours playing car and motorcycle games per week for drivers involved in the road accidents

It seems that motorcycle and car games have no clear effect on the young drivers and their involvement in traffic accidents, as shown in the Figures (4.17 though 4.20). The significance of the relationship will be tested in the statistical analysis section.

4.1.1.12 Practice driving over sand dunes

- **First: for all drivers**

The analysis purpose of this section was to illustrate whether there is a relationship between driving over sand dunes and traffic accidents among young drivers surveyed in the study, given that this type of fun driving is one of the favorite driving practices in Saudi Arabia. The illustrations of the analysis are presented in Table 4.21 and Figure 4.21 for all drivers surveyed in the research.

Table 4.21 Practice driving over sand dunes for all drivers

Practice driving over sand dunes	Number	Percentage
Always	**40**	**7.26**
Sometimes	**198**	**35.93**
Never	**313**	**56.81**
Total	**551**	

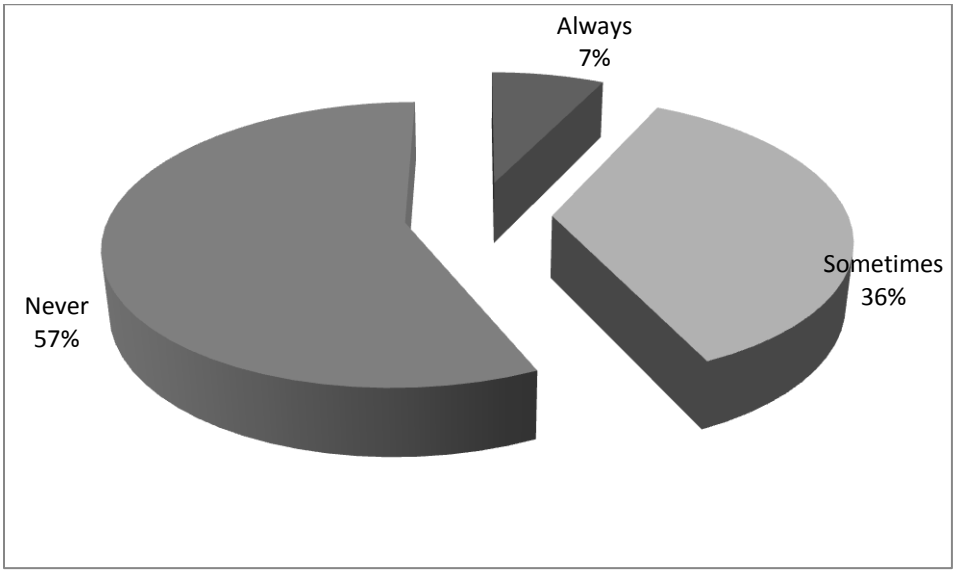

Figure 4.21 Practice driving over sand dunes for all drivers (percentages)

- **Second: for drivers involved in road accidents only**

The analysis purpose of this section was to illustrate whether there is a relationship between driving over sand dunes and traffic accidents among young drivers participating in the study. The illustrations of the analysis are shown in Table 4.22 and Figure 4.22 for drivers involved in road accidents only.

Table 4.22 Driving over sand dunes practice for drivers involved in road accidents

Driving over sand dunes practice	Number	Percentage
Always	**28**	**9.21**
Sometimes	**125**	**41.12**
Never	**151**	**49.67**
Total	**304**	

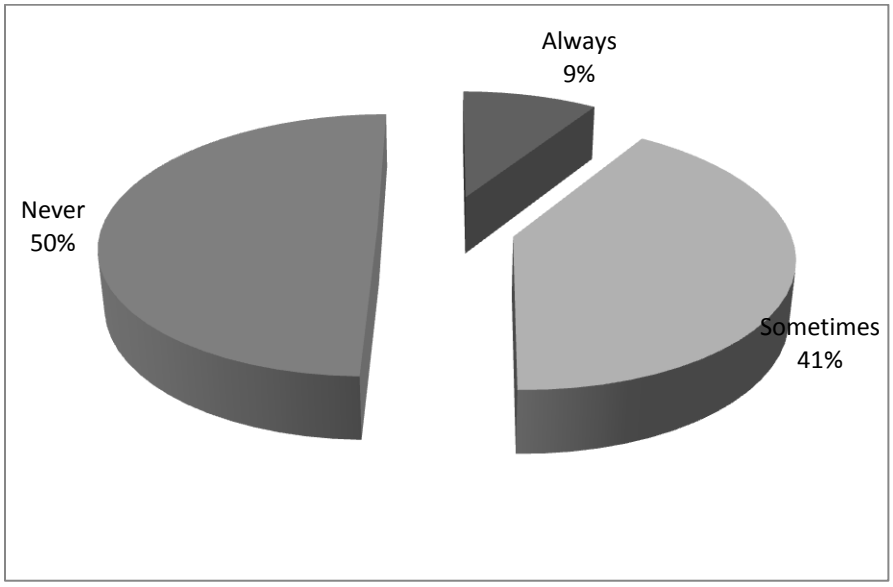

Figure 4.22 Practice driving over sand dunes for drivers involved in road accidents (percentages)

It seems that drivers who practiced driving over sand dunes have a greater tendency to be involved in traffic accidents as shown in Figure 4.21 and Figure 4.22. The significance of the relationship will be tested in the statistical analysis section.

4.1.1.13 Drifting and wheeling practice

- **First: for all drivers**

The analysis purpose of this section was to illustrate whether there is a relationship between drifting and wheeling practice and traffic accidents among young drivers surveyed in this research. Drifting and wheeling are considered as the most dangerous illegal driving practices in Saudi Arabia. The illustrations of the analysis are presented in Table 4.23 and Figure 4.23 for all drivers in the research.

Table 4.23 Drifting and wheeling practice for all drivers

Drifting and wheeling practice	Number	Percentage
Always	**37**	**6.72**
Sometimes	**125**	**22.69**
Never	**389**	**70.59**
Total	**551**	**100**

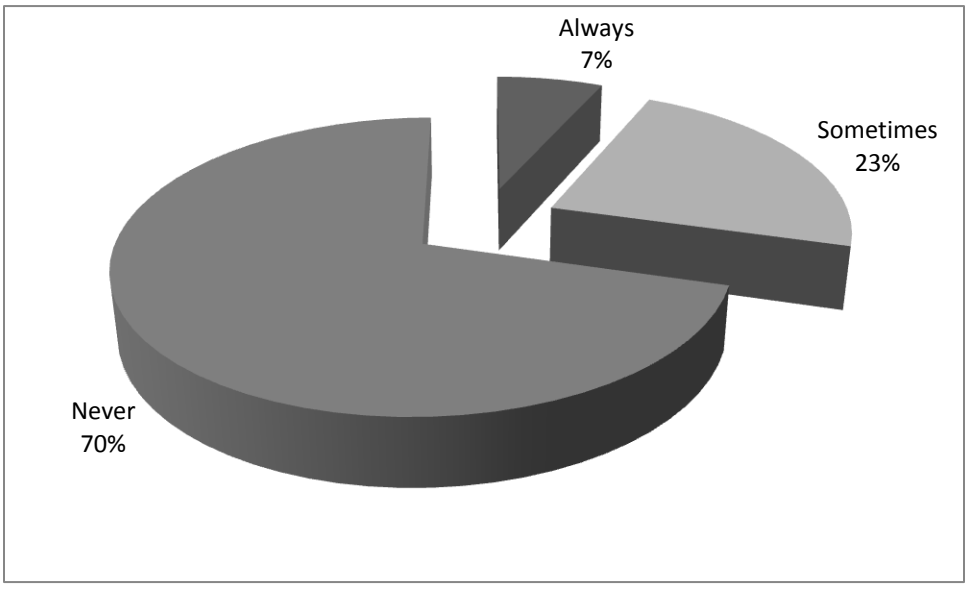

Figure 4.23 Drifting and wheeling practice for all drivers (percentages)

- **Second: for drivers involved in road accidents only**

The analysis purpose of this section was to illustrate whether there is a relationship between drifting and wheeling practice and traffic accidents among young drivers participating in this research for drivers involved in road accidents only. The illustrations of the analysis are shown in Table 4.24 and Figure 4.24.

Table 4.24 Drifting and wheeling practice for drivers involved in road accidents

Drifting and wheeling practice	Number	Percentage
Always	**24**	**7.89**
Sometimes	**89**	**29.28**
Never	**191**	**62.83**
Total	**304**	

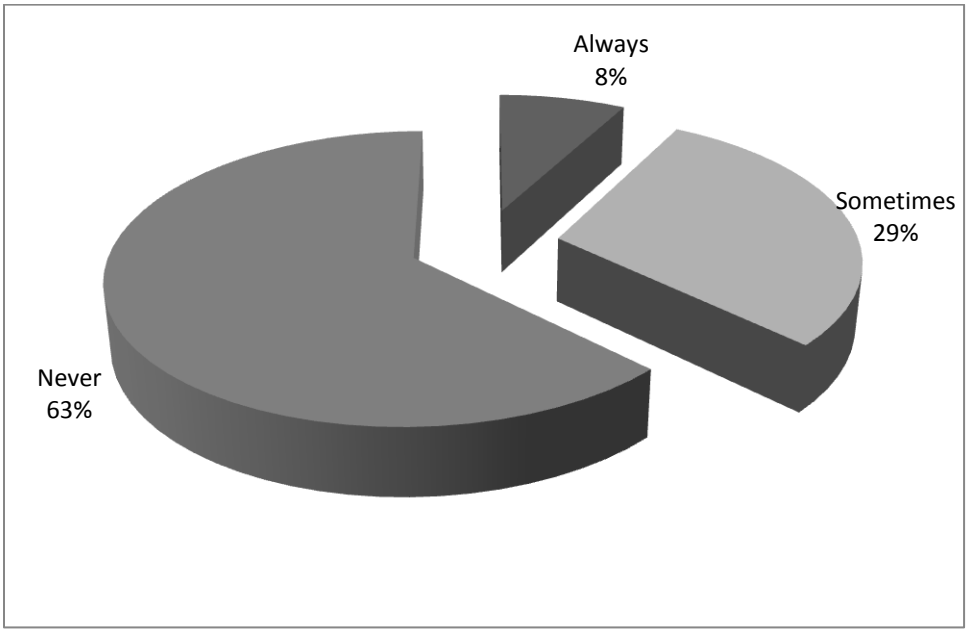

Figure 4.24 Drifting and wheeling practice for drivers involved in road accidents (percentages)

Drifting has been part of illegal driving in Saudi Arabia in recent decades; the phenomenon has been a popular habit among young drivers in the Saudi Arabia culture. This type of illegal driving is known as “Tafheet” in slang in KSA and the Middle East.

It seems that the drivers who practiced drifting and wheeling driving have a greater tendency to be involved in traffic accidents as shown in Figure 4.23 and Figure 4.24. The significance of the relationship will be tested in the statistical analysis section.

4.1.1.14 The time of accidents

The analysis purpose of this section was to illustrate the relationship between the time of the accident and the traffic accidents among young drivers surveyed in this study. The illustrations of the analysis are shown in Table 4.25 and Figure 4.25 for drivers involved in road accidents only.

Table 4.25 The time of the accident

The time of accidents	Number	Percentage
At nighttime	**165**	**54.28**
At daytime	**100**	**32.89**
At both	**39**	**12.83**
Total	**304**	**100**

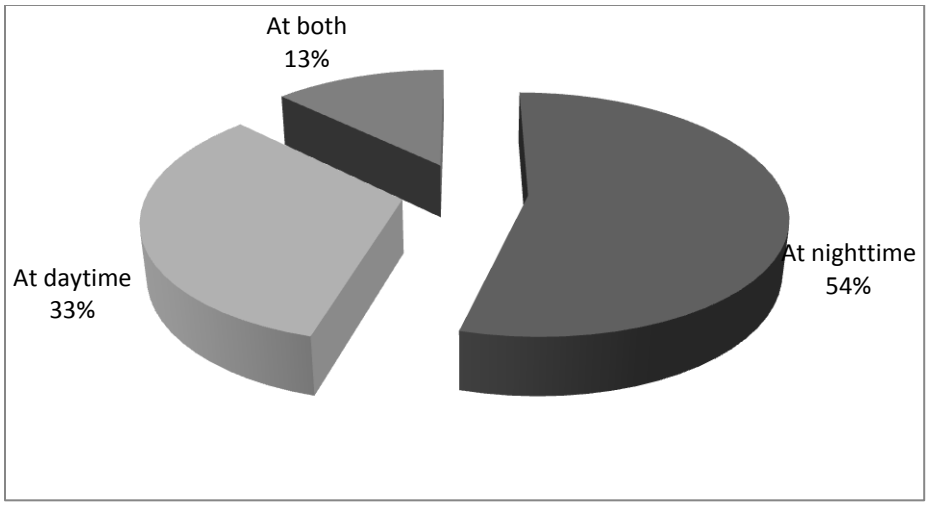

Figure 4.25 The time of the accidents percentages

54% of the accidents in which young drivers are involved in this study were at night time, while 33% of the accidents were at day time. It seems that most of the accidents happened at night time more than at day time, as shown in Figure 4.25. The significance of the relationship will be tested in the statistical analysis section.

4.1.1.15 Purpose of the trips

The analysis purpose of this section was to illustrate whether there is a relationship between the trip purpose and traffic accidents among young drivers participating in this study. The illustrations of the analysis are shown in Table 4.26 and Figure 4.26 for drivers involved in road accidents only.

Table 4.26 Trips purpose in which young drivers are involved in RTAs

Purpose of the trips	Number	Percentage
For errand	**186**	**61.19**
For entertainment	**103**	**33.88**
For Both	**15**	**4.93**
Total	**304**	**100**

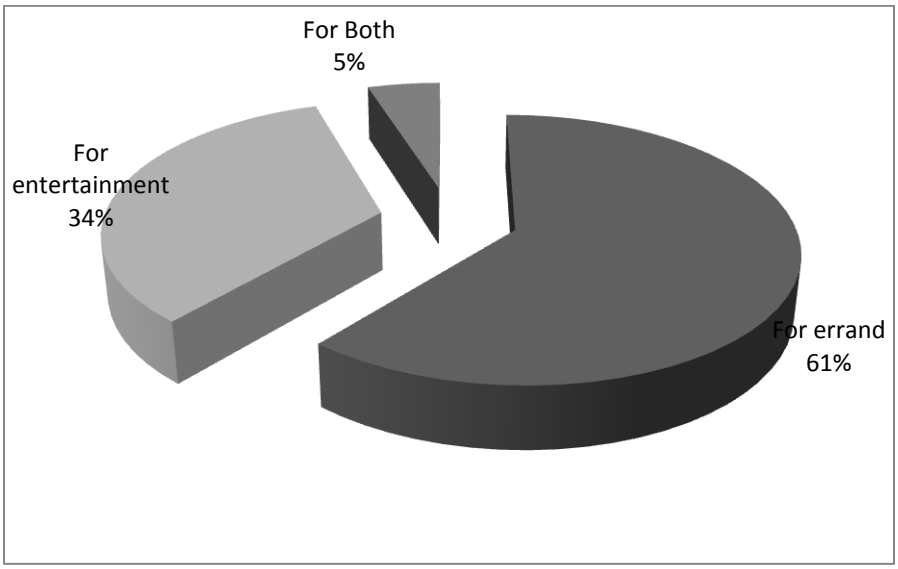

Figure 4.26 Trips purpose in which young drivers are involved in RTAs (percentages)

It seems that most of the accidents in which young drivers are involved happened when they were on an errand, as shown in Figure 4.26. The significance of the relationship will be tested in the statistical analysis section.

4.1.1.16 Passengers at the time of the accident

The analysis purpose of this section was to illustrate whether there is a relationship between the passengers at the accident time and the traffic accidents in which young drivers are involved in the study. The illustrations of the analysis are shown in Table 4.27 and Figure 4.27 for drivers involved in the road accidents only.

Table 4.27 Passengers at the time of the accident

Passengers at the time of the accident	Number	Percentage
Teenagers	**119**	**39.14**
Not teenagers	**52**	**17.11**
No passengers	**133**	**43.75**
Total	**304**	**100**

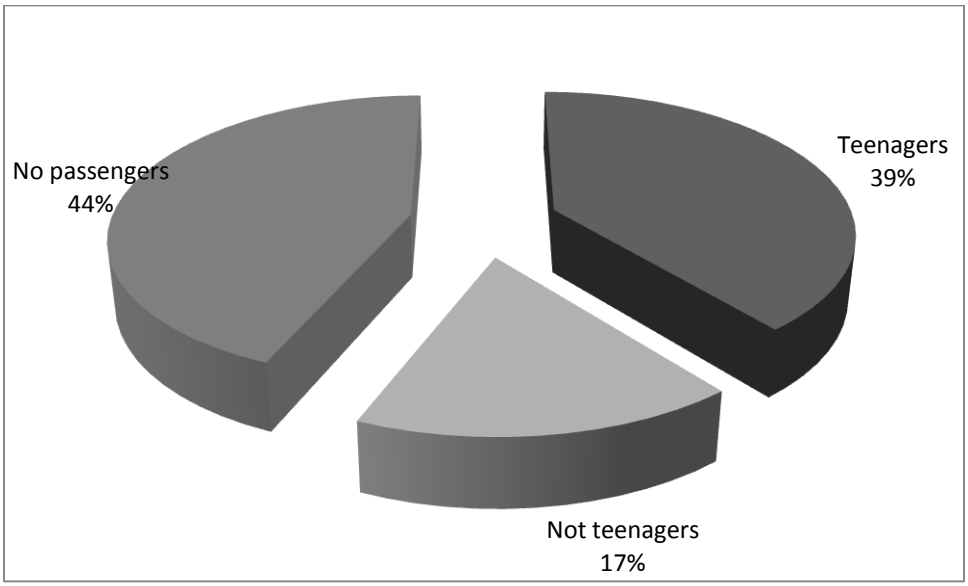

Figure 4.27 Passengers at the time of the accident percentages

The young drivers who were carrying passengers were more involved in traffic accidents which representing 56%, of whom 39% were teenagers. The presence of passengers in a vehicle has been shown to increase traffic accidents among young drivers as shown in Figure 4.27. The significance of the relationship will be tested in the statistical analysis section.

4.1.1.17 Types of damage

The analysis purpose of this section was to illustrate the damage types due to traffic accidents among young drivers participating in this survey. The illustrations of the analysis are shown in Table 4.28 and Figure 4.28.

Table 4.28 Types of damage

Damages	Number	Percentage
Deaths	**11**	**3.62**
Disabilities	**3**	**1.00**
Serious injuries	**26**	**8.55**
Property damage only	**264**	**86.83**
Total	**304**	**100**

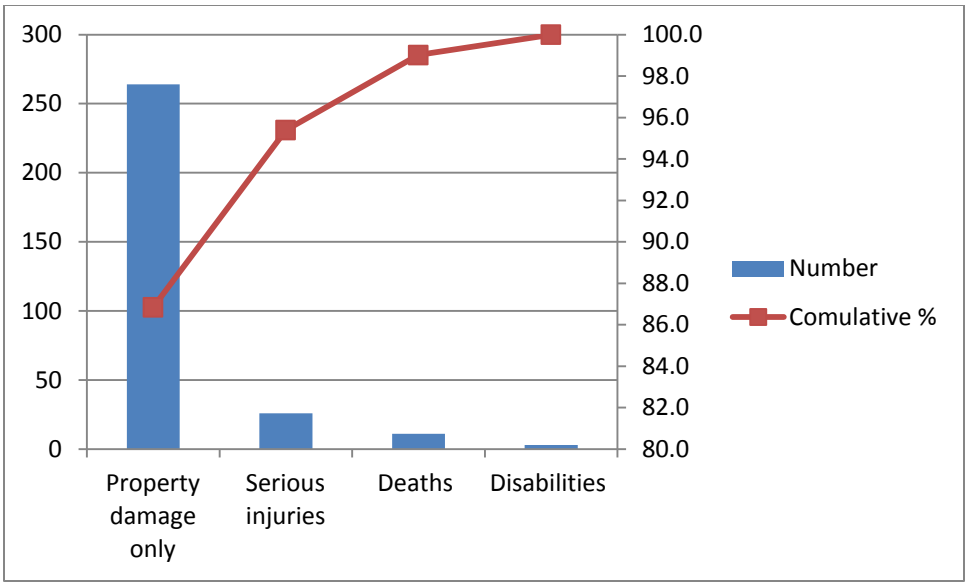

Figure 4.28 Types of damage percentages

Most of the damage cited by young drivers in this research was property damage. There were 1% disabilities, 4% deaths, 8% serious injuries and the rest was property damage. That doesn't mean the young driver accidents were less risky. Infect, there were 13% deaths, disabilities or serious injuries in the accidents in which young drivers were involved by young drivers participating in the study. Moreover, one group was missing in the research; the drivers who died in the traffic accidents. In other words, those drivers who died in the traffic accidents are considered as missing data in the research.

4.1.1.18 Traffic violations involved

The analysis purpose of this section was to illustrate the traffic violations committed by young drivers participating in the study. The illustrations of the analysis are shown in Table 4.29 and Figure 4.29.

Table 4.29 Traffic violations involved

traffic violations	Number	Percentage
Yes	**255**	**46.28**
No	**296**	**53.72**
Total	**551**	**100**

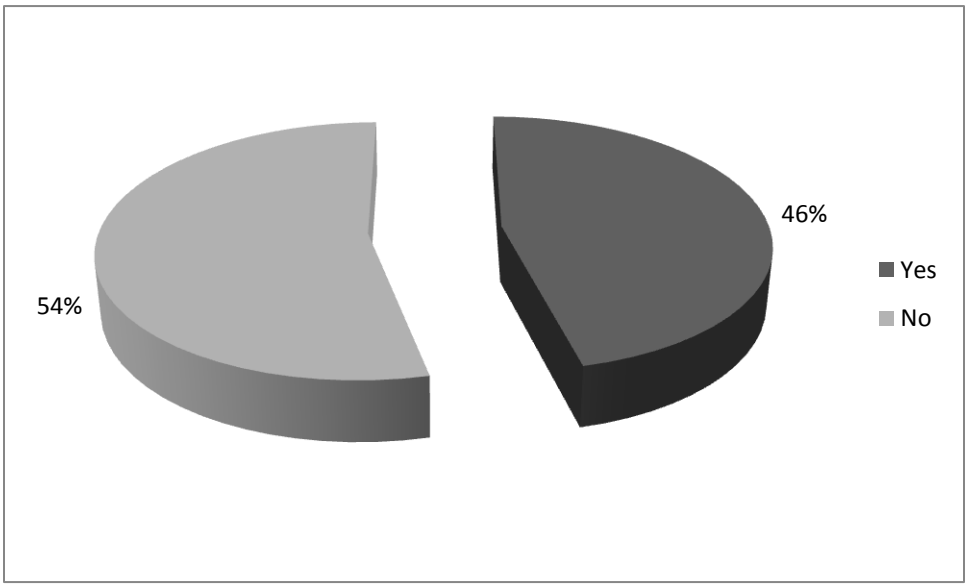

Figure 4.29 Traffic violations involved percentages

The number of traffic violations committed by the drivers in the study is shown in Table 4.30 and Figure 4.30.

Table 4.30 Number of traffic violations committed by the drivers surveyed

Number of traffic violations	Number	Percentage
Never	296	53.72
(1 - 5)	213	38.66
(6 - 10)	28	5.08
More than 10	14	2.54
Total	551	100

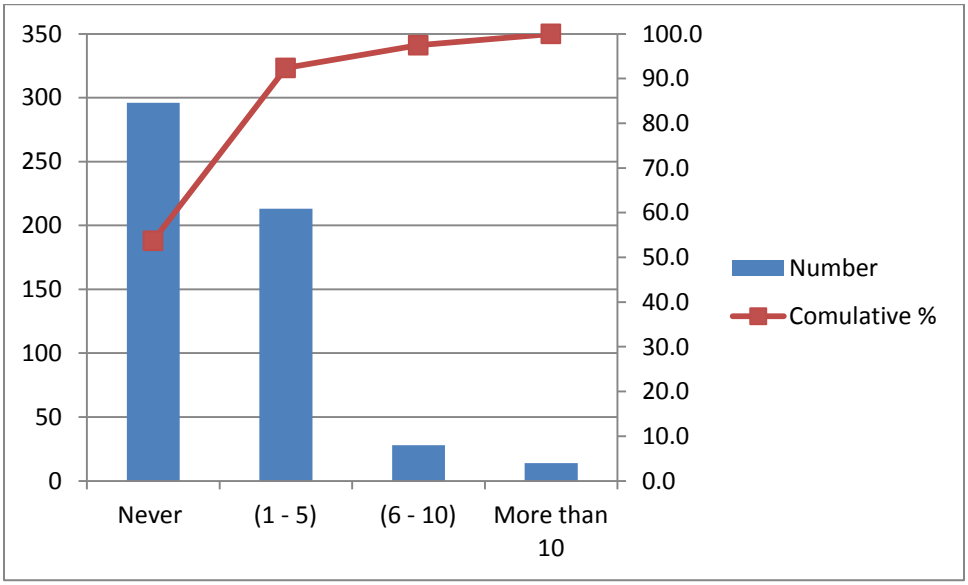

Figure 4.30 The percentage of number of traffic violations committed by the drivers

46 % of young drivers surveyed in the research have at least 1 to 5 traffic violations, and 7% of them have more than 6 traffic violations as shown in Figure 4.29 and Figure 4.30. Surprisingly, traffic violations committed by some of the young drivers surveyed reach 40.

4.1.1.19 Traffic violation types

The analysis purpose of this section was to illustrate the traffic violation types committed by the young drivers surveyed in this research. The illustrations of the analysis are shown in Table 4.31 and Figure 4.31.

Table 4.31 Traffic violation types

Traffic violation types	Number	Percentage
Speeding	137	32.23
Red Signal	39	9.18
Overtaking	23	5.41
Fasten Seat Belt	61	14.35
Mobile Use	7	1.65
Other violations on driver	120	28.24
Other violations on vehicle	38	8.94
Total	425	100

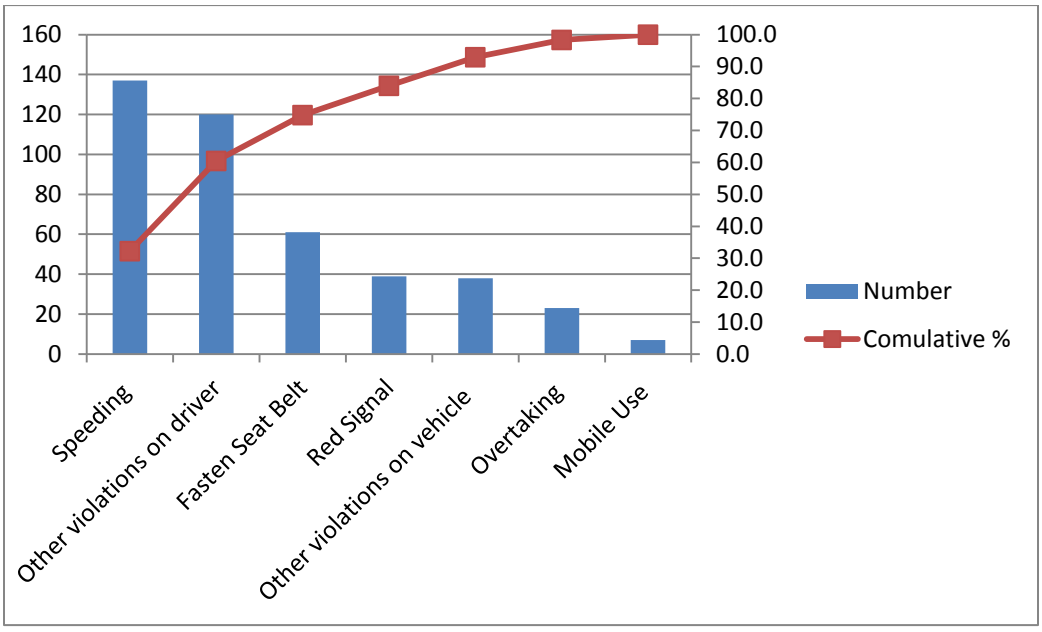

Figure 4.31 Traffic violation types percentages

The most important types of traffic violations committed by young drivers surveyed were speeding 32%, running a red signal 9%, illegal overtaking 5%, unfastened seat belt 14%, mobile use 2%. In addition, there were other violations by drivers representing 28%, and 9% of other violations attributed to vehicles, as shown in Figure 4.31. As we can see, speeding is a major cause for both traffic accidents as well as traffic violations as mentioned previously.

4.1.1.20 Traffic accidents and traffic violations

The analysis purpose of this section was to show both traffic accidents and traffic violations simultaneously for young drivers participating in this study. The illustrations of the analysis are shown in Table 4.32 and Figure 4.32.

Table 4.32 Traffic accidents and traffic violations involved

Violations & Accidents	Number	Percentage
Accidents only	**112**	**20.33**
Violations only	**63**	**11.43**
Did both	**192**	**34.85**
Nothing	**184**	**33.39**
Total	**551**	**100**

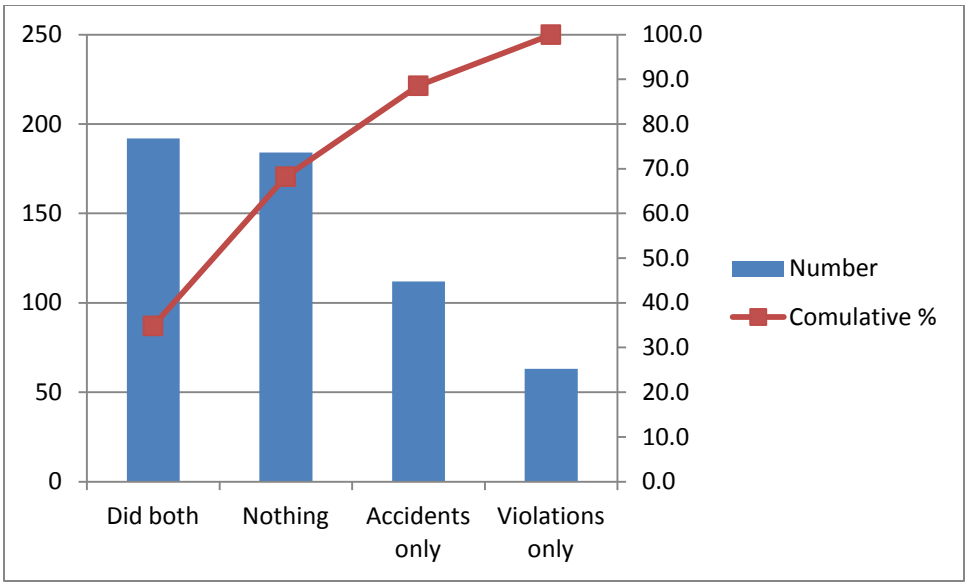

Figure 4.32 Traffic accidents and traffic violations involved percentages

It seems that the drivers involved in traffic violations were more likely to be involved in traffic accidents as shown in Figure 4.32. The significance of the relationship will be tested in the statistical analysis section.

4.1.1.21 Traffic regulations

- **First: for all drivers**

The analysis purpose of this section was to illustrate the obedience to the traffic regulations among young drivers participating in the survey. The illustrations of the analysis are shown in Table 4.33 and Figure 4.33.

Table 4.33 Obedience traffic regulations for all drivers surveyed

Abide traffic regulations	Number	Percentage
Always	**190**	**34.48**
Sometimes	**320**	**58.08**
No	**41**	**7.44**
Total	**551**	

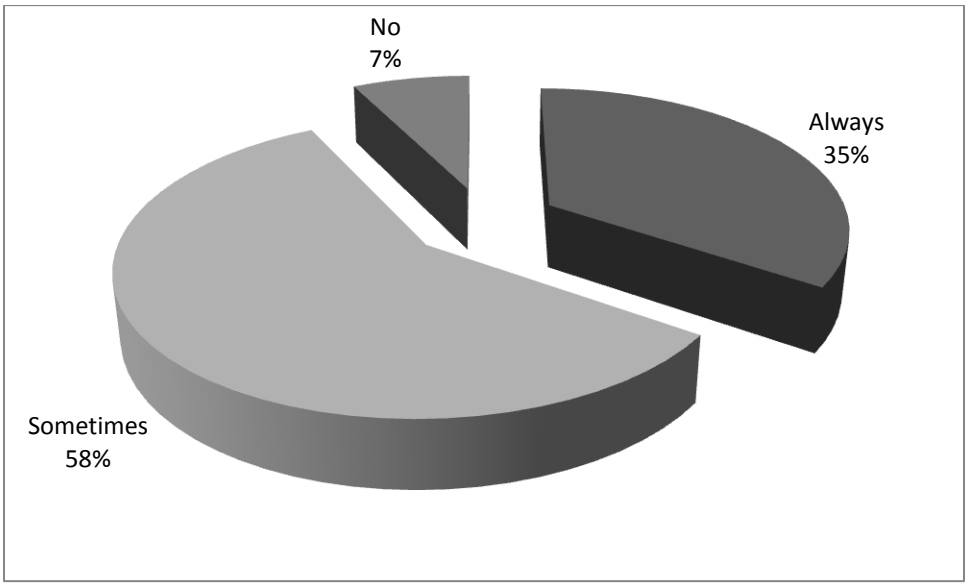

Figure 4.33 Obedience traffic regulations for all drivers surveyed (percentages)

- **Second: for drivers involved in road accidents only**

The analysis purpose of this section was to illustrate the obedience to the traffic regulations among young drivers involved in road accidents only. The illustrations of the analysis are shown in Table 4.34 and Figure 4.34.

Table 4.34 Obedience traffic regulations for the drivers involved in road accidents only

Abide traffic regulations	Number	Percentage
Always	**72**	**23.68**
Sometimes	**200**	**65.79**
No	**32**	**10.53**
Total	**304**	

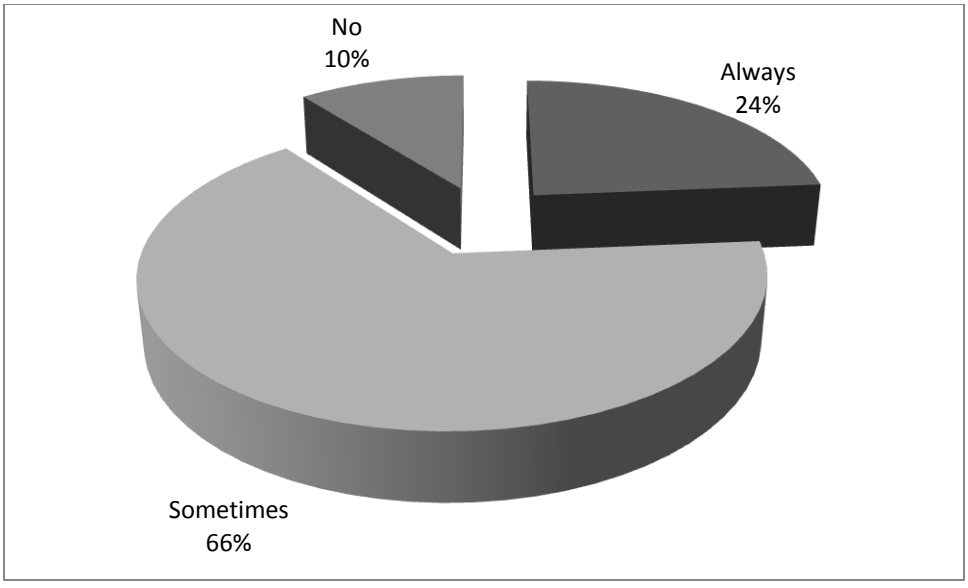

Figure 4.34 Obedience traffic regulations for the drivers involved in road accidents only

Furthermore, a fastened seatbelt at the time of the accident were considered as indicator to evaluate obedience to traffic regulations among young drivers. The illustrations of the analysis are shown in Table 4.35 and Figure 4.35.

Table 4.35 Fasten seatbelt at the time of the accident

Fasten seat belt	Number	Percentage
Yes	**55**	**18.09**
No	**249**	**81.91**
Total	**304**	**100.00**

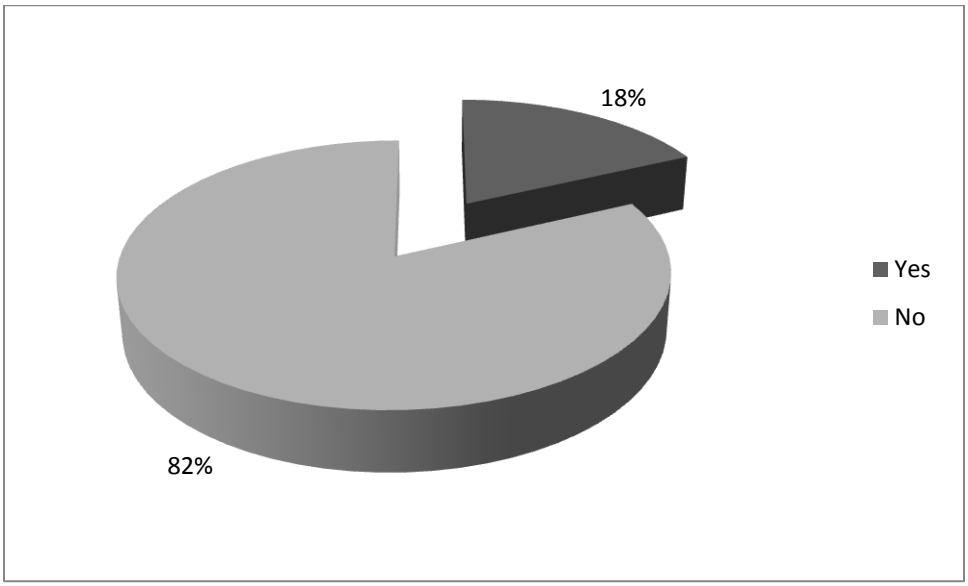

Figure 4.35 Fasten seatbelt at the time of the accident percentage

It seems that young drivers have a tendency to break the traffic regulations as shown in the Figures 4.33, 4.34 and 4.35. The significance of the relationship between traffic accidents and obedience to traffic regulations will be tested in the statistical analysis section.

4.1.2 Statistical analysis

As mentioned previously in the study methodology, the collected data were analyzed descriptively and statistically. In this section the questionnaires were analyzed statistically based on some hypotheses. The hypotheses are used to test the relationship between some variables and the young drivers' involvement in the traffic accidents and traffic violations by using contingency tables.

Two types of statistics were used in the analyses in this research. Chi-square was used to identify the relationship between some variables and drivers involved in traffic accidents and traffic violations based on some hypotheses. The hypotheses were rejected if the value of χ^2 calculated is greater than $\chi^2_{\alpha,v}$, where $\alpha = 0.1$ and v = degree of freedom or if the P-value is less than 0.1 (90% confidence level) . To find out which variable has the biggest contribution in the difference, the contribution χ^2 for each cell was compared with the tabulated value (2.7).

The t-test was used to test the differences in the mean scores of the personality test used in the study (Big Five Inventory factors) with 90% confidence level. The hypotheses were based on the assumption that the mean scores for each factor (of the Big Five Inventory) are equal for both drivers involved in road accidents and those who aren't involved in road accidents.

4.1.2.1 Testing the relationship between the accidents per year and the age of drivers

The chi-square test was used to determine the relationship between the accidents per year and the age of drivers involved in road accidents. The hypothesis was set to test the relationship as follows:

H_0: there is no relationship between the accidents per year and the age of drivers.

H_1: there is a relationship between the accidents per year and the age of drivers.

Table 4.36 shows the counted number, expected value, χ^2 contributions and the percentage for the accidents per year and the age of drivers, while Table 4.37 shows the chi-square value, the degree of freedom and the significance of the relationship.

Table 4.36 Cross tabulation output for testing the relationship between accidents per year and the age of drivers

			Age			
			<18 yrs	18-21 yrs	22-26 yrs	Total
Accidents per year	No Accident	Count	73	170	4	247
		Expected Count	57.8	180.2	9.0	247.0
		Contri to X^2	3.997	0.577	2.778	44.8%
	≤ 2	Count	49	207	15	271
		Expected Count	63.4	197.7	9.8	271.0
		Contri to X^2	3.271	0.437	2.759	49.2%
	> 2	Count	7	25	1	33
		Expected Count	7.7	24.1	**1.2**	33.0
		Contri to X^2	0.064	0.034	0.033	6.0%
Total		Count	129	402	20	551
		Expected Count	129.0	402.0	20.0	551.0
		% of Total	23.4%	73.0%	3.6%	100.0%

Table 4.37 Chi-square test output for relationship between accidents per year and the age of drivers

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	13.881[a]	4	.008
Likelihood Ratio	14.209	4	.007
Linear-by-Linear Association	9.362	1	.002
N of Valid Cases	551		

Table 4.37 shows that, P-value = 0.008 < 0.1. So, reject the null hypothesis and accept the alternative hypothesis and conclude that there is a relationship between the accidents per year among young drivers and the drivers' age. Table 4.36 shows χ^2 contributions, expected values and observed values for each category. In Table 4.38, the expected value of one cell is less than 5 (in bold font). This is statistically not acceptable. Therefore, the second and third columns were consolidated into one column under '≤ 18 yrs' as shown in Table 4.38.

Table 4.38 Cross tabulation for testing the relationship between accidents per year and the age of drivers

			Age		
			<18 yrs	≥ 18 yrs	Total
Accidents per year	No Accident	Count	73	174	247
		Expected Count	57.8	189.2	247.0
		Contri to X^2	3.997	1.22	44.8%
	≤ 2	Count	49	222	271
		Expected Count	63.4	207.5	271.0
		Contri to X^2	**3.271**	1.013	49.2%
	> 2	Count	7	26	33
		Expected Count	7.7	25.3	33.0
		Contri to X^2	0.064	0.019	6.0%
Total		Count	129	422	551
		Expected Count	129.0	402.0	551.0
		% of Total	23.4%	76.60%	100.0%

Pearson Chi-square = 9.584, P-Value = 0.00

From Table 4.38 it is noticed that the count number of young drivers (less than 18 years old) who are involved in road accidents was less than expected. This may indicate that the young drivers less than 18 years old were less involved in road accidents. This is possibly due to less exposure on the roads, as drivers less than 18 years old have less driving.

4.1.2.2 Testing the relationship between traffic accidents and possessing driver licenses

The chi-square test was used to determine the relationship between traffic accidents and the possession of driver licenses. The hypothesis was set to test the relationship as follows:

H_0: there is no relationship between traffic accidents and possessing driver licenses.

H_1: there is a relationship between traffic accidents and possessing driver licenses.

Table 4.39 shows the count, expected, χ^2 contributions and the percentage for the traffic accidents and the possession of driver licenses, while Table 4.40 shows the chi-square value, the degree of freedom and the significance of the relationship.

Table 4.39 Cross tabulation output for testing the relationship between traffic accidents and possessing driver's license

			Driver licenses			
			Yes	No	Permission	Total
Traffic Accidents	Yes	Count	189	63	52	304
		Expected Count	166.6	89.4	48.0	304.0
		Contri to X^2	3.01	7.796	0.333	55.2%
	No	Count	113	99	35	247
		Expected Count	135.4	72.6	39.0	247.0
		Contri to X^2	3.706	9.60	0.410	44.8%
Total		Count	302	162	87	551
		Expected Count	302.0	162.0	87.0	551.0
		% of Total	54.8%	29.4%	15.8%	100.0%

Table 4.40 Chi-square test output for the relationship between traffic accidents and possessing driver's license

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	24.817[a]	2	.000
Likelihood Ratio	24.836	2	.000
Linear-by-Linear Association	4.468	1	.035
N of Valid Cases	551		

Table 4.40 shows that P-value = 0.000 < 0.1. So, we can reject the null hypothesis and accept the alternative hypothesis and conclude that there is a relationship between traffic accidents among young drivers and possessing driver licenses.

Table 4.39 shows that the observed number of drivers involved in road accidents who have driver licenses was higher than expected. While the observed number of drivers without driver licenses involved in the road accidents was lower than expected. It is concluded that the drivers who have driver licenses were more frequently involved in the accidents. This may indicate that, possessing a driver license gave young drivers more confidence, leading them to drive carelessly sometimes. This is possibly due to more exposure of young drivers who have driver licenses on the roads.

4.1.2.3 Testing the relationship between the accidents per year and the age starting to drive

The chi-square test was used to determine the relationship between the accidents per year and the age of starting to drive. The hypothesis was set to test the relationship as follows:

H_0: there is no relationship between the accidents per year and the age of starting to drive.

H_1: there is a relationship between the accidents per year and the age of starting to drive.

Table 4.41 shows the count, the expected value, χ^2 contributions and the percentage for the accidents per year and the age of starting to drive, while Table 4.42 shows the chi-square value, the degree of freedom and the significance of the relationship.

Table 4.42 shows that P-value = 0.001 < 0.1. So, we can reject the null hypothesis and accept the alternative hypothesis and conclude that there is a relationship between the accidents per year and the age of starting to drive.

Table 4.41 Cross tabulation output for testing the relationship between the accidents per year and the age starting to drive

			Start driving age			
			< 14 yrs	14-17 yrs	18-21 yrs	Total
Accidents per year	No Accident	Count	25	195	27	247
		Expected Count	39.0	186.0	22.0	247.0
		Contri to X^2	5.026	0.435	1.136	44.8%
	≤ 2	Count	59	196	16	271
		Expected Count	42.8	204.1	24.1	271.0
		Contri to X^2	6.1	0.321	2.722	49.2%
	> 2	Count	3	24	6	33
		Expected Count	5.2	24.9	**2.9**	33.0
		Contri to X^2	0.931	0.033	3.314	6.0%
Total		Count	87	415	49	551
		Expected Count	87.0	415.0	49.0	551.0
		% of Total	15.8%	75.3%	8.9%	100.0%

Table 4.42 Chi-square test output for the relationship between the accidents per year and the age starting to drive

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	19.966[a]	4	.001
Likelihood Ratio	19.760	4	.001
Linear-by-Linear Association	3.965	1	.046
N of Valid Cases	551		

In Table 4.41, the expected value of one cell is less than 5 (in bold font). This is statistically not acceptable. Therefore, the table rows were consolidated into two rows instead of three rows under ‘involved in the road accidents’ and ‘not involved in the road accidents’ as shown in Table 4.43.

Table 4.43 Cross tabulation for testing the relationship between the accidents per year and the age starting to drive

			Start driving age			
			< 14 yrs	14-17 yrs	18-21 yrs	Total
Involved in the road accidents	No	Count	25	195	27	247
		Expected Count	39.0	186.0	22.0	247.0
		Contri to X^2	5.026	0.435	1.136	44.8%
	Yes	Count	62	220	22	304
		Expected Count	48	228.9	27	271.0
		Contri to X^2	4.083	0.346	0.926	55.2%
Total		Count	87	415	49	551
		Expected Count	87.0	415.0	49.0	551.0
		% of Total	15.8%	75.3%	8.9%	100.0%

Pearson Chi-square = 11.952, P-Value = 0.00

Table 4.43 shows that the observed number of drivers involved in road accidents who began their driving at age < 14 yrs was more than expected. That means the young drivers who began the car driving too early were more involved in road accidents. Also, the inflation in the chi-square contribution for young drivers who started driving at age between 14 to 17 years was very small. This reflected that drivers from 14 to 17 years old should receive driver training.

4.1.2.4 Testing the relationship between the accidents per year and driver training methods

The chi-square test was used to determine the relationship between the accidents per year and driver training methods. The hypothesis was set to test the relationship as follows:

H_0: there is no relationship between the accidents per year and the driver training methods.

H_1: there is a relationship between the accidents per year and the driver training methods.

Table 4.44 shows the count, the expected value, χ^2 contributions and the percentage for the accidents per year and driver training methods, while Table 4.45 shows the chi-square value, the degree of freedom and the significance of the relationship.

Table 4.45 shows that, P-value = 0.015 < 0.1. So, we can reject the null hypothesis and accept the alternative hypothesis and conclude that there is a relationship between the accidents per year and the driver training methods.

Table 4.44 Cross tabulation output for testing the relationship between the accidents per year and drivers training methods

			Learn car driving		
			Others	Driving school	Total
Accidents per year	No Accident	Count	221	26	247
		Expected Count	221.9	25.1	247.0
		Contri to X^2	0.004	0.032	44.8%
	≤ 2	Count	249	22	271
		Expected Count	243.5	27.5	271.0
		Contri to X^2	0.124	1.10	49.2%
	> 2	Count	25	8	33
		Expected Count	29.6	**3.4**	33.0
		Contri to X^2	0.715	6.22	6.0%
Total		Count	495	56	551
		Expected Count	495.0	56.0	551.0
		% of Total	89.8%	10.2%	100.0%

Table 4.45 Chi-square test output for the relationship between the accidents per year and drivers training methods

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	8.442[a]	2	.015
Likelihood Ratio	6.746	2	.034
Linear-by-Linear Association	.781	1	.377
N of Valid Cases	551		

In Table 4.45, the expected value of one cell is less than 5 (in bold font). This is statistically not acceptable. Therefore, the table rows were consolidated into two rows instead of three rows under ‘involved in the road accidents’ and ‘not involved in the road accidents’ as shown in Table 4.46.

Table 4.46 Cross tabulation output for testing the relationship between the accidents per year and drivers training methods

			Learn car driving		
			Others	Driving school	Total
Involved in the road accidents	No	Count	221	26	247
		Expected Count	221.9	25.1	247.0
		Contri to X^2	0.004	0.032	44.8%
	Yes	Count	274	30	304
		Expected Count	273.1	30.8	304
		Contri to X^2	0.0003	0.020	55.1%
Total		Count	495	56	551
		Expected Count	495.0	56.0	551.0
		% of Total	89.8%	10.2%	100.0%

Pearson Chi-square = 0.06, P-Value = 0.806

After consolidation of cells as shown in Table 4.46, P-value = 0.806 > 0.1. So, we accept the null hypothesis and reject the alternative hypothesis and conclude that there is no relationship between the accidents per year and driver training methods. It is supposed that the drivers who learned how to drive in the driving school should be safer and less involved in road accidents.

4.1.2.5 Testing the relationship between traffic accidents and practice driving over sand dunes

The chi-square test was used to determine the relationship between traffic accidents and practice the driving over sand dunes. The hypothesis was set to test the relationship as follows:

H_0: there is no relationship between traffic accidents and practice the driving over sand dunes.

H_1: there is a relationship between traffic accidents and practice driving over sand dunes.

Table 4.47 shows the count, the expected value, χ^2 contributions and the percentage for the traffic accidents and practice driving over sand dunes, while Table 4.48 shows the chi-square value, the degree of freedom and the significance of the relationship.

Table 4.48 shows that, P-value = 0.001 < 0.1. So, we reject the null hypothesis and accept the alternative hypothesis and conclude that there is a relationship between traffic accidents and practice driving over sand dunes.

Table 4.47 Cross tabulation output for testing the relationship between the traffic accidents and practice driving over sand dunes

			Practice driving over sand dunes			
			Always	Sometimes	Never	Total
Traffic Accidents	Yes	Count	28	125	151	304
		Expected Count	22.1	109.2	172.7	304.0
		Contri to X^2	1.575	2.286	2.727	55.2%
	No	Count	12	73	162	247
		Expected Count	17.9	88.8	140.3	247.0
		Contri to X^2	1.945	2.211	3.36	44.8%
Total		Count	40	198	313	551
		Expected Count	40.0	198.0	313.0	551.0
		% of Total	7.3%	35.9%	56.8%	100.0%

Table 4.48 Chi-square test output for the relationship between the traffic accidents and practice driving over sand dunes

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	14.704[a]	2	.001
Likelihood Ratio	14.880	2	.001
Linear-by-Linear Association	14.141	1	.000
N of Valid Cases	551		

Table 4.47 shows that the observed number of drivers who have never practiced driving over sand dunes and have been involved in road accidents was lower than expected. On the other hand, the observed numbers of young drivers who have never practiced driving over sand dunes and haven't been involved in road accidents was higher than expected. Therefore, it can be concluded that the drivers who have never practiced driving over sand dunes were less involved in the road accidents.

For more and clearer results about driving over sand dunes, we consolidated ‘always practice’ and ‘sometimes practice’ columns under one column ‘practiced driving over sand dunes’ as shown in Table 4.47. It is clear that the young drivers who practiced driving over sand dunes were more involved in road accidents as shown in Table 4.49.

Table 4.49 Relationship between driving over sand dunes and traffic accidents involvement

			Driving over sand dunes practice		
			Practiced	Never	Total
Traffic Accidents	Yes	Count	153	151	304
		Expected Count	131.3	172.7	304.0
		Contri to X^2	3.5	2.727	52.2%
	No	Count	85	162	247
		Expected Count	106.6	140.3	247.0
		Contri to X^2	4.37	3.36	44.8%
					.
Total		Count	238	313	551
		Expected Count	238.0	313.0	551.0
		% of Total	43.2%	56.8%	100.0%

Chi-square = 13.96 ; P-value = 0.00

4.1.2.6 Testing the relationship between the traffic accidents and drifting and wheeling

The chi-square test was used to determine the relationship between traffic accidents and the practice of drifting and wheeling. The hypothesis was set to test the relationship as follows:

H_0: there is no relationship between traffic accidents and the practice of drifting and wheeling.

H_1: there is a relationship between the traffic accidents and the practice of drifting and wheeling.

Table 4.50 shows the count, the expected value, χ^2 contributions and the percentage of the traffic accidents and the practice of drifting and wheeling, while Table 4.51 shows the chi-square value, the degree of freedom and the significance of the relationship.

Table 4.50 Cross tabulation output for testing the relationship between the traffic accidents and practice drifting and wheeling

			Practice drifting and wheeling			
			Always	Sometimes	Never	Total
Traffic Accidents	Yes	Count	24	89	191	304
		Expected Count	20.4	69.0	214.6	304.0
		Contri to X^2	0.635	5.797	2.595	55.2%
	No	Count	13	36	198	247
		Expected Count	16.6	56.0	174.4	247.0
		Contri to X^2	0.781	7.143	3.149	44.8%
Total		Count	37	125	389	551
		Expected Count	37.0	125.0	389.0	551.0
		% of Total	6.7%	22.7%	70.6%	100.0%

Table 4.51 Chi-square test output for the relationship between traffic accidents and practice drifting and wheeling

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	20.188[a]	2	.000
Likelihood Ratio	20.738	2	.000
Linear-by-Linear Association	14.853	1	.000
N of Valid Cases	551		

Table 4.51 shows that P-value = 0.000 < 0.1. So, we reject the null hypothesis and accept the alternative hypothesis and conclude that there is a relationship between the traffic accidents and the practice of drifting and wheeling.

Table 4.50 shows that the observed number of drivers who have never practiced drifting and wheeling and have been involved in road accidents was lower than expected, while, the observed number of young drivers who have never practiced drifting and wheeling and haven't been involved in road accidents was higher than expected. Hence, it can be concluded that the drivers who have never practiced drifting were less involved in the road accidents. Also, it can be seen that, drivers who practiced drifting were more involved in road accidents and more dangerous than the other young drivers.

For more and clearer results about drifting and wheeling practice, we consolidated 'always practice' and 'sometimes practice' columns under one column 'practiced drifting and wheeling driving' as shown in Table 4.52.

Table 4.52 Relationship between drifting and wheeling practice and traffic accidents involvement

			Practice drifting and wheeling		
			Practiced	Never	Total
Traffic Accidents	Yes	Count	113	191	304
		Expected Count	89.4	214.6	304.0
		Contri to X^2	6.2	2.595	52.2%
	No	Count	49	198	247
		Expected Count	72.6	174.4	247.0
		Contri to X^2	7.6	3.149	44.8%
					.
Total		Count	488	63	551
		Expected Count	488.0	63.0	551.0
		% of Total	29.4%	70.6%	100.0%

Chi-square = 19.54 ; P-value = 0.00

It is clear that the young drivers who practiced drifting and wheeling were more involved in the road accidents as shown in Table 4.52.

4.1.2.7 Testing the relationship between the traffic accidents per year and passengers at the time of the accident

The chi-square test was used to determine the relationship between the traffic accidents per year and passengers at the time of the accident. The hypothesis was set to test the relationship as follows:

H_0: there is no relationship between the traffic accidents per year and passengers at the time of the accident.

H_1: there is a relationship between the traffic accidents per year and passengers at the time of the accident.

Table 4.53 shows the count, the expected value, χ^2 contributions and the percentage for the traffic accidents per year and passengers at the time of the accident, while Table 4.54 shows the chi-square value, the degree of freedom and the significance of the relationship.

Table 4.53 Cross tabulation output for testing the relationship between traffic accidents per year and passengers at the time of the accidents

			Passengers at the time of the accidents			
			Teenagers	Not teenagers	No passengers	Total
Accidents per year	≤ 2	Count	100	50	121	271
		Expected Count	106.1	46.4	118.6	271.0
		Contri to X^2	0.351	0.279	0.049	89.1%
	> 2	Count	19	2	12	33
		Expected Count	12.9	5.6	14.4	33.0
		Contri to X^2	2.884	2.314	0.40	10.9%
Total		Count	119	52	133	304
		Expected Count	119.0	52.0	133.0	304.0
		% of Total	39.1%	17.1%	43.8%	100.0%

Table 4.54 Chi-square test output for the traffic accidents per year and passengers at the time of the accidents

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	6.314[a]	2	.043
Likelihood Ratio	6.758	2	.034
Linear-by-Linear Association	2.974	1	.085
N of Valid Cases	304		

Table 4.54 shows that, P-value = 0.043 < 0.1. So, we reject the null hypothesis and accept the alternative hypothesis and conclude that there is a relationship between the traffic accidents per year and passengers at the time of the accident.

Table 4.53 shows that the observed number of drivers who are involved in more than two accidents per year and have teenager passengers at the time of the accident was higher than expected. In conclusion, teenage passengers with young drivers can be considered a risk factor of young drivers' involvement in road accidents.

4.1.2.8 Driver's personality relationship with traffic accidents and traffic violations

The purpose of this section was to identify the personality of the drivers involved in the road accidents and traffic violations, as mentioned previously. The Big Five Inventory (BFI) Test is used in this study. An Arabic translation of the BFI tested in an Arab environment by the psychologist Dr. Arnout, Basra, Umm Al-gura University was used in the research.

The Big five inventory measures an individual on the Big Five Factors (dimensions), which are Extraversion, Conscientiousness, Neuroticism, Agreeableness, and Openness. Each of these factors is then further divided into some personality facets (see literature review page 13).

In this section, we tested each factor score of the Big Five Inventory (BFI) test individually for both drivers involved in road accidents and drivers not involved in road accidents, as well as in traffic violations.

To test the significance of the differences between the mean scores of both groups, the independent t-test was computed. Both involvement in traffic accidents and traffic violations were tested to identify the personality of more risky young drivers.

4.1.2.8.1 Testing the BFI factors versus traffic accidents

The independent t-test was used to test the difference between mean scores of young drivers involved in traffic accidents and those who were not involved in any traffic accidents for each factor of BFI. The hypothesis was set as follows:

H_0: No statistical differences between the mean scores in each factor for the drivers involved in road accidents and those who were not involved in any accidents.

H_0: $\text{mean}_{\text{scores, involved}} = \text{mean}_{\text{scores, not involved}}$

H_1: There are statistical differences between the mean scores in each factor for the drivers involved in road accidents and those who were not involved in any accidents.

H_1: $\text{mean}_{\text{scores, involved}} \neq \text{mean}_{\text{scores, not involved}}$

Table 4.55 shows the descriptive statistics for the extroversion, agreeableness and openness factors for the drivers who were surveyed and their involvement in road accidents, while Table 4.56 shows the independent t-test for extroversion, agreeableness and openness factors.

The null hypothesis was accepted in three factors including extroversion, agreeableness and openness, and concludes that there were no differences between the mean scores of these factors for both groups.

Table 4.55 Descriptive statistics for extroversion, agreeableness and openness factors with traffic accidents

	Traffic Accidents	N	Mean	Std. Deviation	Std. Error Mean
Extroversion	Yes	233	24.65	3.726	.244
	No	191	24.21	3.545	.257
Agreeableness	Yes	233	23.64	3.101	.203
	No	191	23.94	2.725	.197
Openness	Yes	233	28.24	3.991	.261
	No	191	28.18	3.688	.267

Table 4.56 T- test output for extroversion, agreeableness and openness factors with traffic accidents

		Levene's Test for Equality of Variances		t-test for Equality of Means				
							90% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Lower	Upper
Extroversion	Equal variances assumed	.424	.515	1.230	422	.219	-.262	1.137
	Equal variances not assumed			1.236	412.724	.217	-.258	1.134
Agreeableness	Equal variances assumed	3.007	.084	-1.023	422	.307	-.857	.270
	Equal variances not assumed			-1.036	419.940	.301	-.850	.263
Openness	Equal variances assumed	1.126	.289	.140	422	.889	-.687	.793
	Equal variances not assumed			.141	415.959	.888	-.682	.787

Table 4.57 shows the descriptive statistics for the conscientiousness and neuroticism factors for the drivers who were surveyed in the research and their involvement in traffic accidents, while Table 4.58 shows the independent t-test for conscientiousness and neuroticism factors.

Table 4.57 Descriptive statistics for conscientiousness and neuroticism factors with traffic accidents

	Traffic Accidents	N	Mean	Std. Deviation	Std. Error Mean
Conscientiousness	Yes	233	18.67	3.534	.232
	No	191	19.43	3.077	.223
Neuroticism	Yes	233	13.68	3.566	.234
	No	191	12.92	3.208	.232

Table 4.58 T- test output for conscientiousness and neuroticism factors with traffic accidents

		Levene's Test for Equality of Variances		t-test for Equality of Means				
							90% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Lower	Upper
Conscientiousness	Equal variances assumed	2.679	.102	-2.320	422	.021	-1.396	-.115
	Equal variances not assumed			-2.352	420.447	.019	-1.387	-.124
Neuroticism	Equal variances assumed	1.390	.239	2.273	422	.024	.102	1.411
	Equal variances not assumed			2.297	418.336	.022	.109	1.404

The null hypothesis was rejected in two factors: conscientiousness and neuroticism, and concludes that, there were differences between the mean scores of these two factors for both groups, as shown in Table 4.58. The interpretation of the t-test results for both factors are shown below respectively.

For the conscientiousness factor:

As shown in Table 4.58, Levene's test for equality of variances indicated that the equal variance between both groups is assumed (P > 0.1).). So, we have to read from the first row and neglect the second row in the t-test Table.

P-value = 0.021 < 0.1. So, we reject the null hypothesis and accept the alternative hypothesis. Because of this, we can conclude that there is a significant statistical difference between the mean scores of drivers involved in road accidents and those who were not involved in any accidents for the conscientiousness factor. Since descriptive statistics, as shown in Table 4.57, revealed that the mean scores for the drivers not involved in road accidents was greater than the mean for those who are involved in the road accidents, we can conclude that drivers who got a high score on the conscientiousness factor were less involved in road accidents and safer than the other drivers.

For the neuroticism factor:

As shown in Table 4.58, Levene's test for equality of variances indicated that the equal variance between both groups is assumed (P > 0.1). So, we have to read from the first row and neglect the second row in the t-test Table.

P-value = 0.024 < 0.1. So, we reject the null hypothesis and accept the alternative hypothesis. Because of this, we can conclude that there is a significant statistical difference between the mean scores of drivers involved in the road accidents and those who are not involved in any accidents for neuroticism factor. Since descriptive statistics, as shown in Table 4.57, revealed that the mean scores for the drivers involved in road accidents was greater than the mean for those who were not involved in the road accidents, we can conclude that, drivers who got a high score on neuroticism factor were more involved in road accidents and more risky than the other drivers.

4.1.2.8.2 Testing the BFI factors versus traffic violations

The independent t-test was used to test the significance between the mean scores of young drivers involved in traffic violations and those who are not involved in any traffic violations for each factor. The hypothesis was set as follows:

H_0: No statistical differences between the mean scores in each factor for the drivers involved in traffic violations and those who are not involved in any traffic violations.

H_0: $\text{mean}_{\text{scores, involved}} = \text{mean}_{\text{scores, not involved}}$

H_1: There is a statistical difference between the mean scores in each factor for the drivers involved in traffic violations and those who are not involved in any traffic violations.

H_1: $\text{mean}_{\text{scores, involved}} \neq \text{mean}_{\text{scores, not involved}}$

Table 4.59 shows the descriptive statistics for the extroversion, agreeableness and openness factors for the drivers who were surveyed in the research and their involvement in traffic violations, while Table 4.60 shows the independent t-test for the extroversion, agreeableness and openness factors.

Table 4.59 Descriptive statistics for extroversion, agreeableness and openness factors with traffic violations

	Traffic violations	N	Mean	Std. Deviation	Std. Error Mean
Extroversion	Yes	196	24.44	3.831	.274
	No	228	24.47	3.491	.231
Agreeableness	Yes	196	23.54	2.854	.204
	No	228	23.98	3.000	.199
Openness	Yes	196	27.95	3.883	.277
	No	228	28.44	3.822	.253

Table 4.60 T- test output for extroversion, agreeableness and openness factors with traffic violations

		Levene's Test for Equality of Variances		t-test for Equality of Means				
							90% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Lower	Upper
Extroversion	Equal variances assumed	1.286	.257	-.086	422	.932	-.730	.669
	Equal variances not assumed			-.085	398.378	.932	-.735	.674
Agreeableness	Equal variances assumed	.171	.680	-1.530	422	.127	-.999	.124
	Equal variances not assumed			-1.536	417.657	.125	-.997	.122
Openness	Equal variances assumed	.017	.897	-1.306	422	.192	-1.227	.248
	Equal variances not assumed			-1.304	410.501	.193	-1.228	.248

The null hypothesis was accepted in three factors including extroversion, agreeableness and openness, and we conclude that there were no differences between the mean scores of these factors for both groups, as shown in Table 4.60.

Table 4.61 shows the descriptive statistics for the conscientiousness and neuroticism factors for the drivers participating in the research and their involvement in traffic violations, while Table 4.62 shows the independent t-test for conscientiousness and neuroticism factors.

Table 4.61 Descriptive statistics for conscientiousness and neuroticism factors with traffic violations

	Traffic violations	N	Mean	Std. Deviation	Std. Error Mean
Conscientiousness	Yes	196	18.59	3.492	.249
	No	228	19.38	3.192	.211
Neuroticism	Yes	196	13.88	3.438	.246
	No	228	12.87	3.354	.222

Table 4.62 T- test output for conscientiousness and neuroticism factors with traffic violations

		Levene's Test for Equality of Variances		t-test for Equality of Means				
							90% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Lower	Upper
Conscientiousness	Equal variances assumed	1.049	.306	-2.418	422	.016	-1.424	-.147
	Equal variances not assumed			-2.402	398.976	.017	-1.428	-.143
Neuroticism	Equal variances assumed	.035	.852	3.069	422	.002	.365	1.664
	Equal variances not assumed			3.063	409.301	.002	.363	1.665

The null hypothesis was rejected in two factors including conscientiousness and neuroticism, and we conclude that, there was a statistical difference between the mean scores of these two factors for both groups, as shown in Table 4.62. The interpretation of the t-test results for both factors are shown below respectively.

For the conscientiousness factor:

As shown in Table 4.62, Levene's test for equality of variances indicated that the equal variance between both groups is assumed (P > 0.1). So, we have to read from the first row and neglect the second row in the t-test Table.

P-value = 0.016 < 0.1. So, we reject the null hypothesis and accept the alternative hypothesis. Because of this, we can conclude that there is a significant statistical difference between the mean scores of drivers involved in traffic violations and those who are not involved in any traffic violations for the conscientiousness factor. Since descriptive statistics, as shown in Table 4.61, revealed that the mean scores for the drivers not involved in traffic violations was greater than the mean for those who are involved in traffic violations, drivers who got a high score on the conscientiousness factor were less involved in traffic violations and they were more careful about traffic regulations.

For the neuroticism factor:

As shown in Table 4.62, Levene's test for equality of variances indicated that the equal variance between both groups is assumed (P > 0.1). So, we have to read from the first row and neglect the second row in the t-test Table.

P-value = 0.002 < 0.1. So, we reject the null hypothesis and accept the alternative hypothesis. Because of this, we can conclude that there is a significant statistical difference between the mean scores of drivers involved in traffic violations and those

who are not involved in any traffic violations for the neuroticism factor. Since descriptive statistics, as shown in Table 4.61, revealed that the mean scores for the drivers involved in the traffic violations was greater than the mean for those who are not involved in the traffic violations, we can conclude that drivers who got a high score on the neuroticism factor were more involved in traffic violations and they were careless about traffic regulations.

In conclusion, the results of the BFI test analysis in this section were similar for both drivers involved in road accidents and drivers involved in traffic violations. Drivers with a high score in the conscientiousness factor were less involved in road accidents as well as in traffic violations. On the other hand, drivers with a high score in the neuroticism factor were more involved in both traffic accidents and traffic violations. The similarities in the results give us more confidence to use the BFI test as an indicator for young drivers and their risk taking in traffic accidents and traffic violations.

CHAPTER 5

CONCLUSION AND RECOMMENDATIONS

The research aims to identify the characteristics of young drivers involved in road accidents and traffic violations and their risk factors in the Dammam Metropolitan Area. The study also set out to identify the personality of the young drivers involved in road accidents and traffic violations and of those who are not involved in any accidents and traffic violations. A summary and conclusion follow for the most important results of the research.

5.1 Summary

In general, most of the surveyed drivers in the research were Saudi nationals; representing 89% of all the drivers surveyed, while non-Saudi represented 11% only. Their ages ranged between 16 to 25 years, which represent the young drivers in the society. 73% of the surveyed young drivers were between 18 to 21 years old, representing 73% of the drivers in this research. 15.8% of the drivers started their driving early (at younger than 14 years old), while 8.9% of them started their driving after reaching the age of 18 years (legal age for driving in Saudi Arabia). But most

of the surveyed young drivers, around 75%, started their driving when they were between 14 to 17 years old.

Most of the young drivers surveyed in the research learnt how to drive the car through their fathers, brothers and friends. 56% of them learnt how to drive from their fathers, 18% of them how to drive from their brothers, and 5% of them how to drive from friends, while only 10% took their training in a driving school.

Around 55 % of the young drivers surveyed in this research had driver's license, 16% had driving permits, but 29% had neither licenses nor permits. 21% of the drivers involved in road accidents didn't have drivers' license, 17% had driving permits, while 62% of the drivers involved in traffic accidents had driver's license. We can't say that the drivers who have licenses were more often involved in road accidents because we don't know whether they were involved in the accidents before they got the driver's license or after they got them.

In this research, 55% of the surveyed drivers were involved in at least one traffic accident. Surprisingly, the traffic accident involvement of some drivers reached 4 accidents per year. The most important causes of traffic accidents among young drivers were speeding 25%, running red signal 3%, illegal overtaking 14.5%

using mobile 11.7 %, recklessness 2.7%, falling asleep at the wheel 1.9%, inattention and distraction 7.3%.

Regarding traffic violations, 46% of the surveyed young drivers in the research were involved in traffic violations. The most important types of traffic violations were speeding 32%, red signal violation 9%, dangerous overtaking 5%, not fastening seat belt 14%, mobile use 2%, other driver violations 28% (such as parking violations, non-possessing of driver's license, drifting, etc.), other vehicle violations 9% (such as shading, invalid vehicle registration, lighting, etc.). As we can see, speeding is a major cause for both traffic accidents and traffic violations.

Around 75% of the young drivers surveyed began driving at age between 14 and 17 years old, while 16% of them started driving earlier, younger than 14 years old. A few of them began the driving extremely early, younger than 10 years old. About 9% only of the drivers started driving after 18 years old. Hence, most the young drivers surveyed in this research started driving before the legal age for possessing a driver’s license. In this research it was found that the optimum age for young drivers to begin driving was from 14 to 17 years old. This doesn't mean they are allowed to drive on main roads, but can start driving in safe places or training areas.

It is clear that car driving video games are popular among young people in Saudi Arabia. More than 85% of the young drivers surveyed in this research played driving video games, spending at least 1 to 4 hours per week. There are many ways to encourage safety behind the wheel. Driving video games could be a way to encourage young drivers to drive more safely. Violent driving video games should be prohibited and driving video games that promote safe driving should be encouraged. Driving video games can be used to teach young drivers the basic rules of safe driving and traffic regulations. However, no significant relationship was found between playing car video games and traffic accidents.

Driving over sand dunes and practice drifting and wheeling are very common activities in Saudi Arabia. They are considered a kind of entertainment and fun driving. The drifting phenomenon has been a popular pastime among young drivers in the Kingdom of Saudi Arabia. Those types of illegal driving are known as "Tafheet" and "tatties" in KSA and the Middle East. In this research it was found that, the young drivers who practiced drifting and wheeling were more frequently involved in road accidents as well as driving over sand dunes. Drifting and wheeling threatens young drivers' lives and other road users, even those who are just at the roadside or spectators. Also, drivers who practiced driving over sand dunes have a greater tendency to be involved in traffic accidents. Hence, strict laws are needed to curb these driving pastimes among young drivers. In addition, awareness campaigns for young drivers and fathers are needed to alert them about the severity of the consequences of drifting and wheeling, and driving over sand dunes.

Around 56% of the drivers surveyed in this research had passengers in their cars at the time the accident, 39% of whom were teenagers. The presence of passengers in a vehicle could be considered a risk factor in the increase of the young drivers' involvement in traffic accidents, especially when the passengers are teenagers.

Most of the damage caused by young drivers in this research was property damage. Disabilities accounted of 1%, deaths 4%, serious injuries 8% and, the rest was property damage. That doesn't mean the young driver accidents were less risky. 13% of the traffic accidents in which the young drivers surveyed were involved resulted in deaths, disabilities or serious injuries. Moreover, one group was missing in the research; the drivers who died in the traffic accidents. In other words, those drivers who died in the traffic accidents were considered as missing data in the research.

Out of the statistical analysis for the risk factors, Big Five Inventory test and the most important results, some conclusions were drawn, as shown in the next section.

5.2 Conclusions

The practical conclusions of the research findings can be summarized in the following points:

1- There is a relationship between the accidents per year and the age of drivers. Drivers younger than 18 were less involved in road accidents. This may be due to higher exposure (longer travel distances).

2- There is a relationship between traffic accidents and the possession of drivers' licenses among young drivers. Young drivers who have a driver's license were more often involved in road accidents. This may be due to less exposure, or having a driver's license may give them more confidence leading them to drive recklessly sometimes.

3- There is a relationship between the accidents per year and the age at which they began driving. The drivers who started driving very early (younger than 14 were more often involved in road accidents.

4- The methods of learning how to drive have no effect on the young drivers' involvement in road accidents. One would assume that the young drivers who learned in driving school should have a better knowledge and be less often involved in road accidents. It is assumed that a driving school should be more capable of training the learners to drive properly and safely.

5- There is a relationship between traffic accidents and practicing driving over sand dunes. The drivers who have never practiced driving over sand dunes were less often involved in road accidents. The nature of driving over sand dunes may encourage drivers to take risky moves for fun.

6- There is a relationship between traffic accidents and practice drifting and wheeling. The drivers who practiced drifting and wheeling were more often involved in road accidents and more dangerous than those who never practiced drifting and wheeling. This is an obvious result since drifting and wheeling involves speeding and reckless driving which encourages drivers to make risky moves that result in accidents.

7- There is a relationship between traffic accidents per year and passengers at the time of the accident. Young drivers with passengers on board were more often involved in road accidents and more dangerous if the passengers were teenagers. The passengers may distract the drivers and encourage him to make risky maneuvers to impress his peers.

8- There is a relationship between traffic accidents and the driver's personality. The Big Five Inventory personality test was used to identify the personality of young drivers involved in road accidents and traffic violations and those who are not involved in any accidents or traffic violations. The test factors were divided into three categories, as follows:

- Extraversion, agreeableness and openness factors; these three factors don't give us any indication about the young drivers and their involvement in road accidents and traffic violations.
- Conscientiousness; drivers who got a high score on the conscientiousness factor were less often involved in road accidents and safer than the other drivers as well as having fewer traffic violations.
- Neuroticism; drivers who got a high score on the neuroticism factor were more often involved in road accidents and more risky than the other drivers as well as having more traffic violations.

5.3 Recommendations

- There should be awareness campaigns for young drivers and fathers to educate them about the dangers related to driving over sand dunes and practice drifting and wheeling. Moreover, decision makers should create strict laws to prohibit those types of dangerous driving for fun.

- We need to look for safer alternative solutions for young drivers' entertainment to practice rather than dangerous ones.

- Traffic authorities should develop rules and guidelines for training schools to implement an appropriate training based on skills, knowledge and safety to improve the driving schools performance.

- Since most of the young drivers played video games, youth Should be encourages to play helpful video games which teach them the traffic rules and encourage them to drive safely.

- It is not advisable for young drivers to start learning to drive when younger than 14 years old.

- The Big Five Inventory test can be used as an indicator for young drivers' proneness to traffic accidents and traffic violations.

    - It is recommended that personality tests such as Big Five Inventory test should be applied before allowing young people to drive. They should be given some training, if the test score shows a higher tendency towards traffic accidents and traffic violations.
    - They should be required to take more self-control sessions to help them keep their tendency towards traffic violations and dangerous driving under control.
    - They may be required to implement an intelligent warning system to help young drivers abide traffic regulations.

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Appendix A

Questionnaire

بسم الله الرحمن الرحيم

تهدف هذه الدراسة إلى معرفة نمط و خصائص المخالفات والحوادث المرورية لسائقي المركبات الشباب ووضع مقترحات وحلول وتوصيات للحد من الحوادث المرورية التي تعتبر واحد من اخطر أسباب الوفاة بين الشباب. تهدف الدراسة إلى رفع مستوى السلامة المرورية لسائقي المركبات الشباب. علما بأن الهدف من الاستبيان لغرض علمي بحثي فقط من جامعة الملك فهد للبترول والمعادن.

الجزء الأول: معلومات شخصية

الجنسية

☐ سعودي

☐ غير سعودي

العمر

☐

امتلاك رخصة قيادة

☐ نعم

☐ لا

☐ تصريح قيادة مؤقت

السن عند بداية قيادة السيارة

☐

طريقة تعلم قيادة السيارة

☐ الوالد

☐ الأخ

☐ صديق

☐ مدرسة قيادة السيارات أو تحت إشراف محترف

☐ أخرى

هل بدأت القيادة مع زملاء من نفس السن؟

☐ نعم

☐ لا

هل كنت تمارس العاب الفيديو لقيادة السيارات؟

☐ في سن الطفولة

☐ ألان

☐ ألان وفي سن الطفولة

☐ لا

كم ساعة في الأسبوع تمارس هذه الألعاب تقريبا ؟(تجاهل الإجابة إذا كان جواب السؤال السابق لا)

☐ (1 إلى 4) ساعة ☐ (5 إلى 10) ☐ (10 إلى 15) ☐ (أكثر من ذالك)

هل كنت تمارس العاب على هيئة سيارات أو دراجات نارية لغرض الترفية؟

☐ في سن الطفولة

☐ ألان

☐ ألان وفي سن الطفولة

☐ لا

كم ساعة في الأسبوع تمارس هذه الألعاب تقريبا؟ (تجاهل الإجابة إذا كان جواب السؤال السابق لا)

☐ (1 إلى 4) ساعة ☐ (5 إلى 10) ☐ (10 إلى 15) ☐ (أكثر من ذالك)

هل تمارس هواية التطعيس؟

☐ دائما

☐ أحيانا

☐ لا

هل تمارس هواية التفحيط؟

☐ دائما

☐ أحيانا

☐ لا

الجزء الثاني: المخالفات المرورية

هل حصلت على مخالفات مرورية ؟

☐ نعم

☐ لا

اذا كان الجواب بـــ (نعم):

كم عدد المخالفات المرورية الحاصل عليها ؟

ما نوع المخالفات المرورية التي حصلت عليها؟ (قد تكون أكثر من مخالفة)

☐ زيادة السرعة ☐ قطع إشارة ☐ تجاوز خاطئ

☐ عدم ربط حزام الأمان ☐ استخدام الجوال

☐ أخرى اذكرها ----------

هل تتقيد باللوائح المرورية؟

☐ دائما

☐ أحيانا

☐ لا

الجزء الثالث: الحوادث المرورية

هل ارتكبت حوادث مرورية؟

☐ نعم ☐ لا

اذا كان الجواب بـــــــ (نعم) :

كم عدد الحوادث المرورية التي ارتكبتها ؟

☐

ما هي أسباب الحوادث المرورية التي ارتكبتها؟ (قد يكون أكثر من سبب)

☐ زيادة السرعة ☐ قطع إشارة ☐ تجاوز خاطئ ☐ استخدام الجوال

☐ أخرى اذكرها

.....

هل كنت رابط حزام الأمان عند وقوع الحادث؟

☐ نعم ☐ لا

هل كان الحادث؟

☐ في النهار ☐ في الليل

هل كان الغرض من الرحلة؟

☐ في مهمة ☐ ترفية

هل كان لديك ركاب عند ارتكاب الحادث؟

☐ نعم ☐ لا

إذا هل كان الجواب بـ(نعم) هل الركاب من الشباب؟

☐ نعم ☐ لا

الأضرار البشرية الناتجة عن الحوادث المرتكبة: (قد تكون هناك أكثر من حالة)

☐ وفيات ☐ إعاقة بشرية ☐ إصابات بليغة ☐ أخرى

الجزء الرابع : اختبار الشخصية (personality test)

فيما يلي مجموعة من الخصائص التي قد تنطبق أو لا تنطبق عليك ، من فضلك ضع علامة (√) أسفل الاختيار المناسب لكل عبارة. ومن فضلك لا تترك أي عبارة دون اختيار إجابة مناسبة لها .

الرقم	العبارات	غيرموافق بشدة	غير موافق	غير متأكد	موافق	موافق بشدة
	أري نفسي كشخص					
1	كثير الكلام					
2	حزين ومكتئب					
3	يتميز بالأصالة ، يأتي بأفكار جديدة					
4	متحفظ					
5	يقدم المساعدة للأخرين وغير أناني معهم .					
6	هاديء في طبعه ويتعامل مع الضغوط بشكل جيد					
7	يهتم بأشياء متعددة ومختلفة					
8	مفعم بالطاقة					
9	يمكن الأعتماد عليه في العمل					
10	من الممكن أن يكون متوتراً					
11	بارع ، عميق التفكير					
12	يثير الحماس لدي الأخرين					
13	متسامح					
14	غير منظم					
15	كثير القلق					
16	لديه تصور فعال					
17	يميل للهدوء					
18	يثق في الأخرين					
19	كسول					
20	مبدع					
21	ذو شخصية حازمة					
22	يقدر الفن والجمال					
23	خجول أحياناً					
24	يحترم الأخرين ويراعي مشاعرهم					
25	يؤدي أعماله بكفاءة					
26	يفضل الأعمال الروتينية					
27	متفتح ، اجتماعي					
28	احيانا فظ مع الأخرين					
29	يخطط ويراقب تحقيق أهدافه					
30	يفقد أعصابه بسهولة					
31	متعاون مع الأخرين					
32	فيلسوف في الفن والموسيقي والأدب					

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مكتب وكيل الجامعة للدراسات العليا والبحث العلمي
(٠٣٦)

جامعة الملك فهد للبترول والمعادن
الرقم: 1433/232/0/5
التاريخ: 1433/11/14

الموقر

سعادة وكيل الجامعة للشؤون الأكاديمية
جامعة الأمير محمد بن فهد الأهلية

السلام عليكم ورحمة الله وبركاته،،،

عليكم ورحمة الله وبركاته،،،

أفيد سعادتكم أن طالب سالم بن محمد بابطين أحد طلبة الماجيستير في قسم الهندسة المدنية بجامعة الملك فهد للبترول والمعادن، ويقوم حالياً بإجراء بحث التخرج بعنوان **" خصائص السائقين الشباب في ارتكاب حوادث الطرق"**. ويحتاج لاتمام البحث توزيع استبانة على طلاب الجامعة. علما ان المعلومات ستحاط بسرية تامة لغرض البحث فقط.

أرجو تكرم سعادتكم بتسهيل مهمته في توزيع الإستبانة لإكمال البحث.

وتفضلوا بقبول خالص التحية والتقدير،،،

وكيل الجامعة
للدراسات العليا والبحث العلمي

د. سهل بن نشأت عبد الجواد

Dear Coordinators,
Dr. Nassar has given his approval for the Prep students to be Surveyed. Kindly assist.
thanks Andrew
Oct. 3, 2012

سعادة الأستاذ عزالدين
لا مانع ويؤكد على الطلاب
عبر رئاسة أقسامهم أن يعطوا
تعضيه على الاستبانة

02 OCT 2012

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مكتب وكيل الجامعة للدراسات العليا والبحث العلمي
(٠٣٦)

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المحترم

سعادة عميد كلية المجتمع بالدمام

السلام عليكم ورحمة الله وبركاته،،،

نفيد سعادتكم أن طالب سالم بن محمد بابطين أحد طلبة الماجيستير في قسم الهندسة المدنية بجامعة الملك فهد للبترول والمعادن، ويقوم حالياً بإجراء بحث التخرج بعنوان " **خصائص السائقين الشباب في ارتكاب حوادث الطرق**". ويحتاج لاتمام البحث توزيع استبانة على طلاب الثانويات والجامعات ومراكز التأهيل في المنطقة الشرقية. علما ان المعلومات ستحاط بسرية تامة لغرض البحث فقط.

أرجو التكرم بتسهيل مهمته في توزيع الإستبانة لإكمال البحث. شاكرين ومقدرين لسعادتكم.

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تشوير الطلاب
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الرقم: 1433/224/0/5
التاريخ: 1433/11/14

سعادة وكيل الجامعة للدراسات العليا والبحث العلمي **الموقر**

جامعة الدمام

السلام عليكم ورحمة الله وبركاته،،،

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أرجو تكرم سعادتكم بتسهيل مهمته في توزيع الإستبانة لإكمال البحث.

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وكيل الجامعة

للدراسات العليا والبحث العلمي

د. سهل بن نشأت عبد الجواد

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جامعة الملك فهد للبترول والمعادن
الرقم: 1433/233/0/5
التاريخ: 1433/11/14

المحترم

سعادة عميد الكلية التقنية

السلام عليكم ورحمة الله وبركاته،،،

نفيد سعادتكم أن طالب سالم بن محمد بابطين أحد طلبة الماجيستير في قسم الهندسة المدنية بجامعة الملك فهد للبترول والمعادن، ويقوم حالياً بإجراء بحث التخرج بعنوان " **خصائص السائقين الشباب في ارتكاب حوادث الطرق**". ويحتاج لاتمام البحث توزيع استبانة على طلاب الثانويات والجامعات ومراكز التأهيل في المنطقة الشرقية. علما ان المعلومات ستحاط بسرية تامة لغرض البحث فقط.

أرجو التكرم بتسهيل مهمته في توزيع الإستبانة لإكمال البحث. شاكرين ومقدرين لسعادتكم.

وتفضلوا بقبول خالص التحية والتقدير،،،

وكيل الجامعة
للدراسات العليا والبحث العلمي

د. سهل بن نشأت عبد الجواد

ص.ب ٥٠٠٢ • الظهران ٣١٢٦١ • المملكة العربية السعودية • تلفون : ٨٦٠-٢١٠٠ (٠٣) • فاكس : ٨٦٠-٢٩٩٢ (٠٣)
P.O.Box: 5002 • DHAHRAN 31261 • SAUDI ARABIA • Telephone : (03)860-2100 • Fax: (03)860-2992

بسم الله الرحمن الرحيم

وزارة التعليم العالي
جامعة الملك فهد للبترول والمعادن
مكتب وكيل الجامعة للدراسات العليا والبحث العلمي

جامعة الملك فهد للبترول والمعادن
الرقم: 1433/227/0/5
التاريخ: 1433/11/14

سعادة مدير عام التربية والتعليم بالمنطقة الشرقية **الموقر**

السلام عليكم ورحمة الله وبركاته،،،

نفيد سعادتكم أن الطالب سالم محمد بابطين أحد طلبة الماجيستير في قسم الهندسة المدنية بجامعة الملك فهد للبترول والمعادن ويقوم حالياً بإجراء بحث التخرج بعنوان " خصائص السائقين الشباب في ارتكاب حوادث الطرق". ويحتاج لاتمام البحث توزيع الاستبانة المرفقة على **طلاب الصف الثالث ثانوي** في المدارس المرفقة والتي تم اختيارها عشوائيا بمعدل ٢٠ استبانة لكل مدرسة.

نرجو من سعادتكم تكليف من يلزم لتوزيع وإعادة الاستبانة المرفقة في اقرب وقت ممكن لكي يتمكن الطالب من اتمام البحث. علما ان المعلومات ستحاط بسرية تامة لغرض البحث فقط.

شاكرين ومقدرين تعاونكم ولكم منا خالص الشكر والتقدير.

وكيل الجامعة
للدراسات العليا والبحث العلمي

د. سهل بن نشأت عبد الجواد

ص.ب ٥٠٠٢ • الظهران ٣١٢٦١ • المملكة العربية السعودية • تلفون : ٨٦٠-٢١٠٠ (٠٣) • فاكس : ٨٦٠-٢٩٩٢ (٠٣)

المملكة العربية السعودية
وزارة التربية والتعليم
الإدارة العامة للتربية والتعليم بالمنطقة الشرقية
إدارة التخطيط والتطوير

الرقم : ٣٣١٨٨٥٢٩٧
التاريخ : ١٤٣٣/١١/١٧هـ
المشفوعات : استبانة

إلى: المكرمين مديري مكاتب التربية والتعليم بـ
(شرق الدمام- غرب الدمام- الخبر- الظهران- القطيف- صفوى) حفظهم الله
من: مديرة إدارة التخطيط والتطوير
بشأن: تسهيل مهمة الباحث/ سالم محمد بابطين

السلام عليكم ورحمة الله وبركاته ،،،

بناءً على موافقتنا بشأن تسهيل مهمة الباحث/ سالم محمد بابطين طالب الدراسات العليا لمرحلة الماجستير في قسم الهندسة المدنية بجامعة الملك فهد للبترول والمعادن، والذي يجري بحث بعنوان (خصائص السائقين الشباب في ارتكاب حوادث الطرق)، ويتطلب ذلك تطبيق الاستبانة على طلاب الصف الثالث ثانوي حسب المدارس أدناه:

اسم المدرسة	المكتب	اسم المدرسة	المكتب
مدرسة الخليج	شرق الدمام	مدرسة الحصان الأهلية	شرق الدمام
مدرسة مكة	شرق الدمام	مدرسة الأنصار	غرب الدمام
مدرسة يزيد بن عبدالملك	غرب الدمام	مدرسة بشائر الجزيرة	الخبر
مدرسة اليعقوبي	الخبر	مدرسة العزيزية	الظهران
مدرسة الظهران	الظهران	مدرسة اليرموك الأهلية	الظهران
مدرسة مجمع ابن القيم التعليمي	القطيف	مدرسة القمة الأهلية	صفوى
مدرسة القبلتين	القطيف		
مدرسة الناصرة	القطيف		
مدرسة قباء	صفوى		

عليه فلا مانع من تسهيل مهمته. علماً بأن التطبيق سيكون من قبل الباحث نفسه.

يسعدني شكركم على عنايتكم وتجاوبكم مع ظروف الباحث.

والسلام عليكم ورحمة الله وبركاته ،،،

نوال بنت عبد الرحمن التيسان

١١/١٧
١٤٣٣

dpd@girlseduep.gov.sa ٨٢٦٩٣٦١ فاكس ٨٢٦٤٩٧٧
زوروا موقعنا على الإنترنت www.girlseduep.gov.sa

Appendix B

Big Five Inventory Test

BFI 44-item

How I am in general

Here are a number of characteristics that may or may not apply to you. For example, do you agree that you are someone who likes to spend time with others? Please write a number next to each statement to indicate the extent to which you agree or disagree with that statement.

Table A.1 Big Five Inventory (BFI) 44-Item

Disagree Strongly 1	Disagree a little 2	Neither agree nor disagree 3	Agree a little 4	Agree strongly 5

I see myself as someone who…

_____1. Is talkative	_____23. Tends to be lazy
_____2. Tends to find fault with others	_____24. Is emotionally stable, not easily upset
_____3. Does a thorough job	_____25. Is inventive
_____4. Is depressed, blue	_____26. Has an assertive personality
_____5. Is original, comes up with new ideas	_____27. Can be cold and aloof
_____6. Is reserved	_____28. Perseveres until the task is finished
_____7. Is helpful and unselfish with others	_____29. Can be moody
_____8. Can be somewhat careless	_____30. Values artistic, aesthetic experiences
_____9. Is relaxed, handles stress well	_____31. Is sometimes shy, inhibited
_____10. Is curious about many different things	_____32. Is considerate and kind to almost everyone
_____11. Is full of energy	_____33. Does things efficiently
_____12. Starts quarrels with others	_____34. Remains calm in tense situations
_____13. Is a reliable worker	_____35. Prefers work that is routine
_____14. Can be tense	_____36. Is outgoing, sociable
_____15. Is ingenious, a deep thinker	_____37. Is sometimes rude to others
_____16. Generates a lot of enthusiasm	_____38. Makes plans and follows through with them
_____17. Has a forgiving nature	_____39. Gets nervous easily
_____18. Tends to be disorganized	_____40. Likes to reflect, play with ideas
_____19. Worries a lot	_____41. Has few artistic interests
_____20. Has an active imagination	_____42. Likes to cooperate with others
_____21. Tends to be quiet	_____43. Is easily distracted
_____22. Is generally trusting	_____44. Is sophisticated in art, music, or literature

BFI 10-item

How I am in general

Table A.2 Big Five Inventory (BFI) 10-Item

I see myself as someone who …	Disagree strongly	Disagree a little	Neither agree nor disagree	Agree a little	Agree strongly
… is reserved	(1)	(2)	(3)	(4)	(5)
… is generally trusting	(1)	(2)	(3)	(4)	(5)
… tends to be lazy	(1)	(2)	(3)	(4)	(5)
… is relaxed, handles stress well	(1)	(2)	(3)	(4)	(5)
… has few artistic interests	(1)	(2)	(3)	(4)	(5)
… is outgoing, sociable	(1)	(2)	(3)	(4)	(5)
… tends to find fault with others	(1)	(2)	(3)	(4)	(5)
… does a thorough job	(1)	(2)	(3)	(4)	(5)
… gets nervous easily	(1)	(2)	(3)	(4)	(5)
… has an active imagination	(1)	(2)	(3)	(4)	(5)

Sources:

John, O. P., Donahue, E. M., & Kentle, R. L. (1991). The Big Five Inventory--Versions 4a and 54. Berkeley, CA: University of California, Berkeley, Institute of Personality and Social Research.

John, O. P., Naumann, L. P., & Soto, C. J. (2008). Paradigm shift to the integrative Big Five trait taxonomy: History, measurement, and conceptual issues. In O. P. John, R. W. Robins, & L. A. Pervin (Eds.), Handbook of personality: Theory and research (pp. 114-158). New York, NY: Guilford Press.

Appendix C

Big Five Inventory translated and prepared by Dr. Arnout, Boshra

قائمة العوامل الخمسة الكبري للشخصية

إعداد : "جون و دوناهو وكينتل John, Donahue, and Kentle (1991)

تعريب وتقنين : د. بشرى اسماعيل ، 2009

تتميز قائمة العوامل الخمسة الكبرى Big Five Inventory (BFI) التي وضعها "جون و دوناهو وكينتل John, Donahue, and Kentle (1991) " كأداة لقياس سمات الشخصية بما يلي :

1- مختصرة وعبارتها قصيرة

2- تمتاز بالخصائص السيكومترية من حيث ثبات وصدق مقبولين.

3- قلة فقراتها حيث تتكون من 44 عبارة مقارنة بالقوائم الأخري .

4- تمتاز بالوضوح وسهولة الفهم.

5- إيجاز العبارات وسهولتها وخلوها من الغموض .

6- لاتستغرق وقت طويل في تطبيقهاولاتسبب الملل (John and Srivastava, 1999, P. 22).

وقد تم ترجمة القائمة الى اللغة العربية ، ثم عرضها علي 10 من أساتذة علم النفس والصحة النفسية لتحكيمها .

وتتراوح بدائل الاجابة لكل فقرة من فقرات قائمة العوامل الخمسة الكبري للشخصية ، من أقصى درجات الموافقة (موافق بشدة) إلى أقصى درجات عدم الموافقة (غير موافق بشدة)، مروراً بالحيادية (غير متأكد) في المنتصف. ويتم تقدير الإجابة التي تعبر عن أقصى درجات السلبية (غير موافق بشدة) بدرجة واحدة، والإجابة التي تعبر عن أقصى درجات الإيجابية (الموافقة بشدة) بخمس

درجات. والدرجة الكلية لأحد عوامل الشخصية الخمسة الكبري هي مجموع درجات الفرد في كل العبارات المكونة لهذا العامل .

وتتكون القائمة من (44) فقرة موزعة على خمسة أبعاد أو عوامل للشخصية. مع ملاحظة وجود علامة (R) أمام أرقام بعض الفقرات، وهذا يشير إلي أن السمة عكسية Reverse (John & Srivastava, 1999, p71) .

جدول (1)

توزيع فقرات قائمة العوامل الخمسة الكبري

أبعاد الشخصية	ارقام فقرات المقياس
الإنبساطية	**1, 6R, 11, 16, 21R, 26, 31R,36**
المقبولية	**2R, 7, 12R, 17, 22, 27R, 32, 37R, 42**
يقظة الضمير	**3, 8R, 13, 18R, 23R, 28, 33, 38, 43R**
العصابية	**4, 9R, 14, 19, 24R, 29, 34R, 39**
التفتح	**5, 10, 15, 20, 25, 30, 35R, 40, 41R, 44**

(John & Srivastava, 1999, P.71)

وفيما يلي التعريف الاجرائي لكل بعد من أبعاد القائمة :

أولاً : الإنبساطية Extroversion

تشير الى ذلك السلوك أو مجموعة السمات التي تهدف إلي حصول الفرد علي رضا الأخرين وتقبلهم ، كالميل الى الإختلاط بالآخرين والتفاعل الإنساني والأنشطة الإجتماعية. والشخص الإنبساطي يكون إجتماعياً ويميل الى المرح والتحدث الى الآخرين والإندماج معهم ويميل للمخاطرة. كما أنه

عندما يبتعد عن الآخرين فإنه يشعر بالضيق والتململ ، كما أنه حازم، مغامر، صريح ، ميال الى التوكيد، نشيط، فعال ، قوى، متحمس ، متفاخر، جرئ ، جسور.

ثانياً : المقبولية Agreeableness

تشير الى الميل الى اللطف والمجاملة في المناسبات الإجتماعية. فالذين لديهم مستوى عالي من المقبولية، يكون لديهم إستعداد للتعاطف والصداقة والتفاعل والمودة والتعاون والإيثار والتعاطف والتواضع مع الآخرين . ويميلون إلى الثقة بصدق وأمانة الآخرين والتعاون معهم، وإحترام مشاعرهم وتقاليدهم ، كما أنهم ودودين ، متعاطفين ، رقيقي القلب، يعتمد عليهم ، متسامحين ، طيبين ، متعاونين، محبي للغير.

ثالثاً : يقظة الضمير Conscientiousness

تشير إلي أن الفرد جاداً ومتيقظاً ويتصرف بناء علي ما يمليه عليه ضميره . ويتضمن هذا البعد الضبط الذاتي ، واليقظة ، الإجادة ، والتنظيم، والمثابرة والدقة والاخلاص في العمل ، وحب الكمال. ويتميز الشخص الذي يحصل علي درجة مرتفعة علي هذا البعد بأنه كفؤ، يقوم بأعماله وواجباته ، منظم، قادر علي تحمل المسئولية ، متمكن، مخطط جيد، فعال ومؤثر، يعتمد عليه، دقيق، عملى، حريص، مجتهد .

رابعاً : العصابية Neuroticism

تشير إلي تلك الأفكار والمشاعر و الإنفعالات السلبية لدي الفرد. فالأفراد الذين لديهم مستوى مرتفع من العصابية يتصفون بالقلق، والخوف، والتوتر، والغضب ، والشعور بالذنب ، والإكتئاب. ويرون كل موقف بأنه تهديد لهم . وتتسم الشخصية العصابية بعددة خصائص هي الخجل ، الأنانية ، ضعف الثقة بالنفس، توتر العلاقات الإجتماعية ، وعدم القدرة علي تحمل أو مواجهة الضغوط

خامساً : التفتّح Openness

يشيرالى الإدراك والخيال النشط الفعال ، والإحساس بالجمال، والإهتمام بالمشاعرالداخلية، والميل للتغيير، وحب الإستطلاع ، كما أنه يشير إلي مستوي النضج العقلي واهتمام الفرد بالثقافة . و الفرد ذو مستوي التفتح المرتفع يتصف بأنه خيالي ، إبداعي ، يبحث عن المعرفة بنفسه ، بينما ذوي درجة التفتح المنخفضة يكونوا أقل اهتماماً بالأدب والفن. (John& Srivastava, 1999, P. 30)

الخصائص السيكومترية لقائمة العوامل الخمسة الكبري للشخصية :

أولاً : الثبات : وتم التحقق من الثبات باستخدام بعض مؤشرات الثبات ومنها :

الاتساق الداخلي للمقياس :

وتم التحقق منه بحساب معامل الارتباط بين المفردات والدرجة الكلية للمقياس الفرعي الذي تنتمي إليه علي عينة التقنين (50 طالب وطالبة جامعية)، وكانت قيم معاملات الارتباط ، كما في الجدول التالي :

جدول (2)

معامل الارتباط بين المفردات والدرجة الكلية للمقياس الفرعي

لقائمة العوامل الخمسة الكبري للشخصية

البعد	العبارة	معامل الارتباط	البعد	العبارة	معامل الارتباط
الانبساطية	1	*0.322	العصابية	4	**0.406
	6	**0.497		9	**0.470
	11	**0.427		14	*0.351
	16	**0.401		19	**0.389
	21	**0.516		24	0.150
	26	**0.493		29	0.229
	31	*0.281		34	0.120

	36	*0.350		39	**0.617
المقبولية	2	0.054	التفتح	5	**0.394
	7	**0.392		10	**0.382
	12	0.133		15	*0.272
	17	**0.591		20	**0.450
	22	**0.417		25	*0.316
	27	0.0259		30	**0.435
	32	**0.596		35	*0.276
	37	*0.329		40	0.241
	42	**0.493		41	0.166-
يقظة الضمير	3	0.159		44	*0.346
	8	0.067			
	13	**0.454			
	18	**0.364			
	23	**0.444			
	28	0.104			
	33	**0.473			
	38	*0.347			
	43	0.067			

يتضح من الجدول السابق (2) أن جميع معاملات ارتباط العبارات بالدرجة الكلية للبعد الذي ينتمي اليه دالة احصائياً عند مستوى (0.01) و (0.05) ما عدا العبارات رقم 2 ، 3 ، 8 ، 12 ،24 ، 27 ، 28 ،29 ، 34 ، 40 ، 41 ، 43 كانت معاملات ارتباطها بالدرجة الكلية للمقاييس الفرعية التي تنتمي إليها غير دالة ولهذا سيتم حذفها من القائمة وتصبح بذلك القائمة النهائية مكونة من 32 عبارة.

أبعاد الشخصية	ارقام فقرات المقياس
الإنبساطية	1, 6R, 11, 16, 21R, 26, 31R,36
المقبولية	32, 37R, 42,7, 17, 22
يقظة الضمير	13, 18R, 23R, 33, 38
العصابية	4, 9R, 14, 19, 39
التفتح	5, 10, 15, 20, 25, 30, 35R , 44

وفيما يلي أرقام العبارات بعد حذف العبارات :

أبعاد الشخصية	أرقام فقرات المقياس
الانبساطية	1, 4R, 8 , 12, 17R, 21, 23R,27
المقبولية	24, 28R, 31,5, 13, 18
يقظة الضمير	9, 14R, 19R, 25, 29
العصابية	2, 6R, 10, 15, 30
التفتح	3, 7, 11, 16, 20, 22, 26R , 32

1- حساب ثبات اعادة الأختبار ، حيث تم تطبيق القائمة مرة ثانية علي أفراد عينة التقنين بعد اسبوعين ، وقد بلغ معامل ثبات اعادة الاختبار للانبساطية 0.709 ، وللمقبولية بلغ 0.755 ، ويقظة الضمير 0.692 ، وكان معامل ثبات اعادة الاختبار للعصابية 0.716 ، أما التفتح فقد بلغ 0.657 ، مما يشير إلي ثبات القائمة .

ثانياً الصدق :

استخدمت الباحثة التحليل العاملي للقائمة علي العينة الكلية (200 ، 125 ذكور ، 75 إناث)، وقد أسفرت نتائج التحليل عن تشبع الخمسة العوامل الكبري المكونة للقائمة علي عاملين ، بلغ الجذر الكامن للعامل الأول 2.36 ، ويفسر 46.88 % من التباين الكلي ، وتشبعت علي هذا العامل الانبساطية والمقبولية والتفتح والعصابية (بالسالب) ، وتراوحت قيم التشبعات بين 0.87 للتفتح ، و−0.67 للعصابية . أما العامل الثاني فقد بلغ جذره الكامن 1.04 ، ويفسر 21.08 % من التباين الكلي ، وتشبع علي هذا العامل فقط بعد يقظة الضمير .

جدول (3) عوامل قائمة العوامل الخمسة الكبري للشخصية

وتشبعاتها العاملية بعد التدوير

الأبعاد	قبل التدوير		بعد التدوير		الاشتراكيات
	العامل الأول	العامل الثاني	العامل الأول	العامل الثاني	
الانبساطية	0.68	-0.37	0.71	-0.30	0.60
المقبولية	0.81		0.80	0.13	0.66
يقظة الضمير	0.18	0.94		0.95	0.91
العصابية	-0.67	-0.12	-0.66	-0.19	0.47
التفتح	0.87		0.87		0.75
الجذر الكامن	2.34		1.05		
نسبة التباين الكلي	46.88		21.08		

قائمة العوامل الخمسة الكبري للشخصية لـ" جون ودوناهو و كينتل " John,Donahue,&Kentle,1991

(تعريب وتقنين د. بشرى إسماعيل، 2009)

فيما يلي مجموعة من الخصائص التي قد تنطبق أو لا تنطبق عليك ، علي سبيل المثال ، هل توافق علي أنك شخص تحب أن تقضي وقت مع الأخرين ؟ ، من فضلك ضع علامة (√) أسفل الاختيار المناسب لكل عبارة ، ولاحظ أنه لا توجد إجابة صحيحة وأخري خاطئة . ومن فضلك لا تترك أي عبارة دون اختيار إجابة مناسبة لها . واعلم أن إجاباتك ستحاط بسرية تامة . ولا تستخدم إلا في أغراض البحث العلمي فقط

الرقم	العبارات	غيرموافق بشدة	غير موافق	غير متأكد	موافق	موافق بشدة
	أري نفسي كشخص					
1	كثير الكلام					
2	حزين ومكتئب					
3	يتميز بالأصالة ، يأتي بأفكار جديدة					
4	متحفظ					
5	يقدم المساعدة للأخرين وغير أناني معهم .					
6	هادىء في طبعه ويتعامل مع الضغوط بشكل جيد					
7	يهتم بأشياء متعددة ومختلفة					
8	مفعم بالطاقة					
9	يمكن الأعتماد عليه في العمل					
10	من الممكن أن يكون متوتراً					
11	بارع ، عميق التفكير					
12	يثير الحماس لدي الأخرين					
13	متسامح					
14	غير منظم					
15	كثير القلق					
16	لديه تصور فعال					
17	يميل للهدوء					
18	يثق في الأخرين					
19	كسول					
20	مبدع					
21	ذو شخصية حازمة					
22	يقدر الفن والجمال					
23	خجول أحياناً					
24	يحترم الأخرين ويراعي مشاعرهم					
25	يؤدي أعماله بكفاءة					
26	يفضل الأعمال الروتينية					
27	متفتح ، اجتماعي					
28	احيانا فظ مع الأخرين					
29	يخطط ويراقب تحقيق أهدافه					
30	يفقد أعصابه بسهولة					
31	متعاون مع الأخرين					
32	فيلسوف في الفن والموسيقي والأدب					

Appendix D

Outputs of the statistical analyses

Question	Coding For question	Option	Coding for option
Traffic accidents	**Y1**	**Yes**	**1**
		No	**2**
Accidents per year	**Y2**	**> 2**	**3**
		≤ 2	**2**
		≤ 1	**1**
		No accidents	**0**
Nationality	**X1**	**Saudi**	**1**
		Non Saudi	**2**
Age	**X2**	**Age <18**	**1**
		Age (18 - 21)	**2**
		Age (22 - 26)	**3**
Driver licenses	**X3**	**Yes**	**1**
		No	**2**
		Permission	**3**
Start driving age	**X4**	**Age < 14**	**1**
		Age (14 – 17)	**2**
		Age (18 – 21)	**3**
Learn car driving	**X5**	**Father**	**1**
		Brother	**2**
		Friend	**3**
		Driving school	**4**
		Others	**5**
start driving with nearly same age friends	**X6**	**Yes**	**1**
		No	**2**
Did you play car driving video games?	**X7**	**At child age**	**1**
		Now	**2**
		Now and at child age	**3**
		No	**4**
Spent hours playing video games per week	**X7-1**	**(1 to 4) hours**	**1**
		(5 to10) hours	**2**
		>10 hours	**3**
		No	**4**
Did you practice car and motorcycle games?	**X8**	**At child age**	**1**
		Now	**2**
		Now and at child age	**3**
		No	**4**
Spent hours playing car and motorcycle games per week	**X8-1**	**(1 to 4) hours**	**1**
		(5 to10) hours	**2**
		>10 hours	**3**
		No	**4**

Did you practice driving over sand dunes?	**X9**	**Always**	**1**
		Sometimes	**2**
		No	**3**
Did you practice illegal drifting driving?	**X10**	**Always**	**1**
		Sometimes	**2**
		No	**3**
Traffic violations	**X11**	**Yes**	**1**
		No	**2**
No. of traffic violations	**X12**	**No violations**	**1**
		(1 - 5)	**2**
		(6 - 10)	**3**
		More than 10	**4**
Abide traffic regulations	**X13**	**Always**	**1**
		Sometimes	**2**
		No	**3**
No. of Traffic accidents	**X14**	**No accidents**	**1**
		1 to 2	**2**
		3 to 4	**3**
		More than 4	**4**
fasten seat belt (at time of the accidents)	**X15**	**Yes**	**1**
		No	**2**
Accidents time	**X16**	**At nighttime**	**1**
		At daytime	**2**
		At both	**3**
the Purpose of the trip at the accidents time	**X17**	**For mission**	**1**
		For entertainment	**2**
		For Both	**3**
Passengers during the accidents	**X18**	**Teenagers**	**1**
		Not teenagers	**2**
		No passengers	**3**
Human and property damage	**X19**	**Deaths**	**1**
		Disabilities	**2**
		Serious injuries	**3**
		Property damage only	**4**
Big Five Inventory Test	**X20-1**	**Extroversion**	
	X20-2	**Agreeableness**	
	X20-3	**Conscientiousness**	
	X20-4	**Neuroticism**	
	X20-5	**Openness**	

1) Y1 – X1

Crosstabs

Traffic Accidents * Nationality Crosstabulation

			Nationality		
			Saudi	Non Saudi	Total
Traffic Accidents	Yes	Count	270	34	304
		Expected Count	269.2	34.8	304.0
		% of Total	49.0%	6.2%	55.2%
	No	Count	218	29	247
		Expected Count	218.8	28.2	247.0
		% of Total	39.6%	5.3%	44.8%
Total		Count	488	63	551
		Expected Count	488.0	63.0	551.0
		% of Total	88.6%	11.4%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.042[a]	1	.838		
Continuity Correction[b]	.005	1	.944		
Likelihood Ratio	.042	1	.838		
Fisher's Exact Test				.893	.471
Linear-by-Linear Association	.042	1	.838		
N of Valid Cases	551				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 28.24.

b. Computed only for a 2x2 Table

2) Y2 – X2

Crosstabs

Accidents per year * Age Crosstabulation

			Age			
			<18 yrs	18-21 yrs	22-26 yrs	Total
Accidents per year	No Accident	Count	73	170	4	247
		Expected Count	57.8	180.2	9.0	247.0
		% of Total	13.2%	30.9%	.7%	44.8%
	≤1	Count	49	207	15	271
		Expected Count	63.4	197.7	9.8	271.0
		% of Total	8.9%	37.6%	2.7%	49.2%
	≤ 2	Count	5	20	1	26
		Expected Count	6.1	19.0	.9	26.0
		% of Total	.9%	3.6%	.2%	4.7%
	> 2	Count	2	5	0	7
		Expected Count	1.6	5.1	.3	7.0
		% of Total	.4%	.9%	.0%	1.3%
Total		Count	129	402	20	551
		Expected Count	129.0	402.0	20.0	551.0
		% of Total	23.4%	73.0%	3.6%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	14.334[a]	6	.026
Likelihood Ratio	14.918	6	.021
Linear-by-Linear Association	7.773	1	.005
N of Valid Cases	551		

a. 3 cells (25.0%) have expected count less than 5. The minimum expected count is .25.

Crosstabs

Accidents per year * Age Crosstabulation

			Age			
			<18 yrs	18-21 yrs	22-26 yrs	Total
Accidents per year	No Accident	Count	73	170	4	247
		Expected Count	57.8	180.2	9.0	247.0
		% of Total	13.2%	30.9%	.7%	44.8%
	≤2	Count	49	207	15	271
		Expected Count	63.4	197.7	9.8	271.0
		% of Total	8.9%	37.6%	2.7%	49.2%
	> 2	Count	7	25	1	33
		Expected Count	7.7	24.1	1.2	33.0
		% of Total	1.3%	4.5%	.2%	6.0%
Total		Count	129	402	20	551
		Expected Count	129.0	402.0	20.0	551.0
		% of Total	23.4%	73.0%	3.6%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	13.881[a]	4	.008
Likelihood Ratio	14.209	4	.007
Linear-by-Linear Association	9.362	1	.002
N of Valid Cases	551		

a. 1 cells (11.1%) have expected count less than 5. The minimum expected count is 1.20.

Nonparametric Correlations

Correlations

			Accidents per year	Age
Spearman's rho	Accidents per year	Correlation Coefficient	1.000	.139**
		Sig. (2-tailed)	.	.001
		N	551	551
	Age	Correlation Coefficient	.139**	1.000
		Sig. (2-tailed)	.001	.
		N	551	551

**. Correlation is significant at the 0.01 level (2-tailed).

3) Y1 – X3

Crosstabs

Traffic Accidents * Driver licenses Crosstabulation

			Driver licenses			
			Yes	No	Permission	Total
Traffic Accidents	Yes	Count	189	63	52	304
		Expected Count	166.6	89.4	48.0	304.0
		% of Total	34.3%	11.4%	9.4%	55.2%
	No	Count	113	99	35	247
		Expected Count	135.4	72.6	39.0	247.0
		% of Total	20.5%	18.0%	6.4%	44.8%
Total		Count	302	162	87	551
		Expected Count	302.0	162.0	87.0	551.0
		% of Total	54.8%	29.4%	15.8%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	24.817[a]	2	.000
Likelihood Ratio	24.836	2	.000
Linear-by-Linear Association	4.468	1	.035
N of Valid Cases	551		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 39.00.

4) Y2 – X4

Crosstabs

Accidents per year * Start driving age Crosstabulation

			Start driving age			
			< 14 yrs	14-17 yrs	18-21 yrs	Total
Accidents per year	No Accident	Count	25	195	27	247
		Expected Count	39.0	186.0	22.0	247.0
		% of Total	4.5%	35.4%	4.9%	44.8%
	≤ 1	Count	59	196	16	271
		Expected Count	42.8	204.1	24.1	271.0
		% of Total	10.7%	35.6%	2.9%	49.2%
	≤ 2	Count	3	19	4	26
		Expected Count	4.1	19.6	2.3	26.0
		% of Total	.5%	3.4%	.7%	4.7%
	> 2	Count	0	5	2	7
		Expected Count	1.1	5.3	.6	7.0
		% of Total	.0%	.9%	.4%	1.3%
Total		Count	87	415	49	551
		Expected Count	87.0	415.0	49.0	551.0
		% of Total	15.8%	75.3%	8.9%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	21.512[a]	6	.001
Likelihood Ratio	21.664	6	.001
Linear-by-Linear Association	2.349	1	.125
N of Valid Cases	551		

a. 4 cells (33.3%) have expected count less than 5. The minimum expected count is .62.

Crosstabs

Accidents per year * Start driving age Crosstabulation

			Start driving age			
			< 14 yrs	14-17 yrs	18-21 yrs	Total
Accidents per year	No Accident	Count	25	195	27	247
		Expected Count	39.0	186.0	22.0	247.0
		% of Total	4.5%	35.4%	4.9%	44.8%
	≤ 2	Count	59	196	16	271
		Expected Count	42.8	204.1	24.1	271.0
		% of Total	10.7%	35.6%	2.9%	49.2%
	> 2	Count	3	24	6	33
		Expected Count	5.2	24.9	2.9	33.0
		% of Total	.5%	4.4%	1.1%	6.0%
Total		Count	87	415	49	551
		Expected Count	87.0	415.0	49.0	551.0
		% of Total	15.8%	75.3%	8.9%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	19.966[a]	4	.001
Likelihood Ratio	19.760	4	.001
Linear-by-Linear Association	3.965	1	.046
N of Valid Cases	551		

a. 1 cells (11.1%) have expected count less than 5. The minimum expected count is 2.93.

Nonparametric Correlations

Correlations

			Accidents per year	Start driving age
Spearman's rho	Accidents per year	Correlation Coefficient	1.000	-.109*
		Sig. (2-tailed)	.	.011
		N	551	551
	Start driving age	Correlation Coefficient	-.109*	1.000
		Sig. (2-tailed)	.011	.
		N	551	551

*. Correlation is significant at the 0.05 level (2-tailed).

5) Y2 – X5

Crosstabs

Accidents per year * Learn car driving Crosstabulation

			Learn car driving				
			Father	Brother	Friend	Driving school	Total
Accidents per year	No Accident	Count	134	45	14	26	219
		Expected Count	136.9	44.6	12.5	25.0	219.0
		% of Total	27.3%	9.2%	2.9%	5.3%	44.6%
	≤ 1	Count	157	50	12	22	241
		Expected Count	150.7	49.1	13.7	27.5	241.0
		% of Total	32.0%	10.2%	2.4%	4.5%	49.1%
	≤ 2	Count	13	4	1	6	24
		Expected Count	15.0	4.9	1.4	2.7	24.0
		% of Total	2.6%	.8%	.2%	1.2%	4.9%
	> 2	Count	3	1	1	2	7
		Expected Count	4.4	1.4	.4	.8	7.0
		% of Total	.6%	.2%	.2%	.4%	1.4%
Total		Count	307	100	28	56	491
		Expected Count	307.0	100.0	28.0	56.0	491.0
		% of Total	62.5%	20.4%	5.7%	11.4%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	9.580[a]	9	.386
Likelihood Ratio	7.959	9	.538
Linear-by-Linear Association	.520	1	.471
N of Valid Cases	491		

a. 7 cells (43.8%) have expected count less than 5. The minimum expected count is .40.

Crosstabs

Accidents per year * Learn car driving Crosstabulation

			Learn car driving				
			Father	Brother	Friend	Driving school	Total
Accidents per year	No Accident	Count	134	45	14	26	219
		Expected Count	136.9	44.6	12.5	25.0	219.0
		% of Total	27.3%	9.2%	2.9%	5.3%	44.6%
	≤ 2	Count	157	50	12	22	241
		Expected Count	150.7	49.1	13.7	27.5	241.0
		% of Total	32.0%	10.2%	2.4%	4.5%	49.1%
	> 2	Count	16	5	2	8	31
		Expected Count	19.4	6.3	1.8	3.5	31.0
		% of Total	3.3%	1.0%	.4%	1.6%	6.3%
Total		Count	307	100	28	56	491
		Expected Count	307.0	100.0	28.0	56.0	491.0
		% of Total	62.5%	20.4%	5.7%	11.4%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	8.420[a]	6	.209
Likelihood Ratio	7.057	6	.316
Linear-by-Linear Association	.201	1	.654
N of Valid Cases	491		

a. 2 cells (16.7%) have expected count less than 5. The minimum expected count is 1.77.

Crosstabs

Accidents per year * Learn car driving Crosstabulation

			Learn car driving		
			Others	Driving school	Total
Accidents per year	No Accident	Count	221	26	247
		Expected Count	221.9	25.1	247.0
		% of Total	40.1%	4.7%	44.8%
	≤ 2	Count	249	22	271
		Expected Count	243.5	27.5	271.0
		% of Total	45.2%	4.0%	49.2%
	> 2	Count	25	8	33
		Expected Count	29.6	3.4	33.0
		% of Total	4.5%	1.5%	6.0%
Total		Count	495	56	551
		Expected Count	495.0	56.0	551.0
		% of Total	89.8%	10.2%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	8.442[a]	2	.015
Likelihood Ratio	6.746	2	.034
Linear-by-Linear Association	.781	1	.377
N of Valid Cases	551		

a. 1 cells (16.7%) have expected count less than 5. The minimum expected count is 3.35.

6) Y2 – X6

Crosstabs

Accidents per year * Start driving with nearly same age friends Crosstabulation

			Start driving with nearly same age friends		
			Yes	No	Total
Accidents per year	No Accident	Count	114	133	247
		Expected Count	116.1	130.9	247.0
		% of Total	20.7%	24.1%	44.8%
	≤ 1	Count	129	142	271
		Expected Count	127.4	143.6	271.0
		% of Total	23.4%	25.8%	49.2%
	≤ 2	Count	12	14	26
		Expected Count	12.2	13.8	26.0
		% of Total	2.2%	2.5%	4.7%
	> 2	Count	4	3	7
		Expected Count	3.3	3.7	7.0
		% of Total	.7%	.5%	1.3%
Total		Count	259	292	551
		Expected Count	259.0	292.0	551.0
		% of Total	47.0%	53.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	.407[a]	3	.939
Likelihood Ratio	.407	3	.939
Linear-by-Linear Association	.196	1	.658
N of Valid Cases	551		

a. 2 cells (25.0%) have expected count less than 5. The minimum expected count is 3.29.

Crosstabs

Accidents per year * Start driving with nearly same age friends Crosstabulation

			Start driving with nearly same age friends		
			Yes	No	Total
Accidents per year	No Accident	Count	114	133	247
		Expected Count	116.1	130.9	247.0
		% of Total	20.7%	24.1%	44.8%
	≤ 2	Count	129	142	271
		Expected Count	127.4	143.6	271.0
		% of Total	23.4%	25.8%	49.2%
	> 2	Count	16	17	33
		Expected Count	15.5	17.5	33.0
		% of Total	2.9%	3.1%	6.0%
Total		Count	259	292	551
		Expected Count	259.0	292.0	551.0
		% of Total	47.0%	53.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	.140[a]	2	.933
Likelihood Ratio	.140	2	.933
Linear-by-Linear Association	.137	1	.712
N of Valid Cases	551		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 15.51.

7) Y2 – X7

Crosstabs

Accidents per year * Did you play car driving video games? Crosstabulation

			Did you play car driving video games?				
			At child age	Now	Now and at child age	No	Total
Accidents per year	No Accident	Count	84	4	119	40	247
		Expected Count	82.5	8.1	119.2	37.2	247.0
		% of Total	15.2%	.7%	21.6%	7.3%	44.8%
	≤ 1	Count	86	11	135	39	271
		Expected Count	90.5	8.9	130.8	40.8	271.0
		% of Total	15.6%	2.0%	24.5%	7.1%	49.2%
	≤ 2	Count	11	2	9	4	26
		Expected Count	8.7	.8	12.6	3.9	26.0
		% of Total	2.0%	.4%	1.6%	.7%	4.7%
	> 2	Count	3	1	3	0	7
		Expected Count	2.3	.2	3.4	1.1	7.0
		% of Total	.5%	.2%	.5%	.0%	1.3%
Total		Count	184	18	266	83	551
		Expected Count	184.0	18.0	266.0	83.0	551.0
		% of Total	33.4%	3.3%	48.3%	15.1%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	10.319[a]	9	.325
Likelihood Ratio	10.227	9	.332
Linear-by-Linear Association	.921	1	.337
N of Valid Cases	551		

a. 6 cells (37.5%) have expected count less than 5. The minimum expected count is .23.

Crosstabs

Accidents per year * Did you play car driving video games? Crosstabulation

			Did you play car driving video games?				
			At child age	Now	Now and at child age	No	Total
Accidents per year	No Accident	Count	84	4	119	40	247
		Expected Count	82.5	8.1	119.2	37.2	247.0
		% of Total	15.2%	.7%	21.6%	7.3%	44.8%
	≤ 2	Count	86	11	135	39	271
		Expected Count	90.5	8.9	130.8	40.8	271.0
		% of Total	15.6%	2.0%	24.5%	7.1%	49.2%
	> 2	Count	14	3	12	4	33
		Expected Count	11.0	1.1	15.9	5.0	33.0
		% of Total	2.5%	.5%	2.2%	.7%	6.0%
Total		Count	184	18	266	83	551
		Expected Count	184.0	18.0	266.0	83.0	551.0
		% of Total	33.4%	3.3%	48.3%	15.1%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	8.641[a]	6	.195
Likelihood Ratio	7.985	6	.239
Linear-by-Linear Association	.670	1	.413
N of Valid Cases	551		

a. 2 cells (16.7%) have expected count less than 5. The minimum expected count is 1.08.

Crosstabs

Accidents per year * Did you play car driving video games? Crosstabulation

			Did you play car driving video games?		
			Yes	No	Total
Accidents per year	No Accident	Count	207	40	247
		Expected Count	209.8	37.2	247.0
		% of Total	37.6%	7.3%	44.8%
	≤ 2	Count	232	39	271
		Expected Count	230.2	40.8	271.0
		% of Total	42.1%	7.1%	49.2%
	> 2	Count	29	4	33
		Expected Count	28.0	5.0	33.0
		% of Total	5.3%	.7%	6.0%
Total		Count	468	83	551
		Expected Count	468.0	83.0	551.0
		% of Total	84.9%	15.1%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	.566[a]	2	.754
Likelihood Ratio	.576	2	.750
Linear-by-Linear Association	.561	1	.454
N of Valid Cases	551		

a. 1 cells (16.7%) have expected count less than 5. The minimum expected count is 4.97.

8) Y2 – X71

Crosstabs

Accidents per year * Spent hours per week Crosstabulation

			Spent hours per week				
			No	(1 to 4) hours	(5 to10) hours	>10 hours	Total
Accidents per year	No Accident	Count	41	171	24	11	247
		Expected Count	39.0	164.1	26.4	17.5	247.0
		% of Total	7.4%	31.0%	4.4%	2.0%	44.8%
	≤ 2	Count	42	169	33	27	271
		Expected Count	42.8	180.0	29.0	19.2	271.0
		% of Total	7.6%	30.7%	6.0%	4.9%	49.2%
	> 2	Count	4	26	2	1	33
		Expected Count	5.2	21.9	3.5	2.3	33.0
		% of Total	.7%	4.7%	.4%	.2%	6.0%
Total		Count	87	366	59	39	551
		Expected Count	87.0	366.0	59.0	39.0	551.0
		% of Total	15.8%	66.4%	10.7%	7.1%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	9.917[a]	6	.128
Likelihood Ratio	10.234	6	.115
Linear-by-Linear Association	1.953	1	.162
N of Valid Cases	551		

a. 2 cells (16.7%) have expected count less than 5. The minimum expected count is 2.34.

Crosstabs

Accidents per year * Spent hours per week Crosstabulation

			Spent hours per week			
			No	(1 to 4) hours	>=5 hours	Total
Accidents per year	No Accident	Count	41	171	35	247
		Expected Count	39.0	164.1	43.9	247.0
		% of Total	7.4%	31.0%	6.4%	44.8%
	≤ 2	Count	42	169	60	271
		Expected Count	42.8	180.0	48.2	271.0
		% of Total	7.6%	30.7%	10.9%	49.2%
	> 2	Count	4	26	3	33
		Expected Count	5.2	21.9	5.9	33.0
		% of Total	.7%	4.7%	.5%	6.0%
Total		Count	87	366	98	551
		Expected Count	87.0	366.0	98.0	551.0
		% of Total	15.8%	66.4%	17.8%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	8.231[a]	4	.083
Likelihood Ratio	8.457	4	.076
Linear-by-Linear Association	1.300	1	.254
N of Valid Cases	551		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 5.21.

Nonparametric Correlations

Correlations

			Accidents per year	Spent hours per week
Spearman's rho	Accidents per year	Correlation Coefficient	1.000	.061
		Sig. (2-tailed)	.	.150
		N	551	551
	Spent hours per week	Correlation Coefficient	.061	1.000
		Sig. (2-tailed)	.150	.
		N	551	551

9) Y2 – X8

Crosstabs

Accidents per year * Did you practice car and motorcycle games? Crosstabulation

			Did you practice car and motorcycle games?				
			At child age	Now	Now and at child age	No	Total
Accidents per year	No Accident	Count	127	6	59	55	247
		Expected Count	130.9	4.9	61.4	49.8	247.0
		% of Total	23.0%	1.1%	10.7%	10.0%	44.8%
	≤1	Count	144	4	73	50	271
		Expected Count	143.6	5.4	67.4	54.6	271.0
		% of Total	26.1%	.7%	13.2%	9.1%	49.2%
	≤ 2	Count	15	1	5	5	26
		Expected Count	13.8	.5	6.5	5.2	26.0
		% of Total	2.7%	.2%	.9%	.9%	4.7%
	> 2	Count	6	0	0	1	7
		Expected Count	3.7	.1	1.7	1.4	7.0
		% of Total	1.1%	.0%	.0%	.2%	1.3%
Total		Count	292	11	137	111	551
		Expected Count	292.0	11.0	137.0	111.0	551.0
		% of Total	53.0%	2.0%	24.9%	20.1%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	6.528[a]	9	.686
Likelihood Ratio	8.131	9	.521
Linear-by-Linear Association	1.756	1	.185
N of Valid Cases	551		

a. 6 cells (37.5%) have expected count less than 5. The minimum expected count is .14.

Crosstabs

Accidents per year * Did you practice car and motorcycle games? Crosstabulation

			Did you practice car and motorcycle games?		
			Yes	No	Total
Accidents per year	No Accident	Count	192	55	247
		Expected Count	197.2	49.8	247.0
		% of Total	34.8%	10.0%	44.8%
	≤ 1	Count	221	50	271
		Expected Count	216.4	54.6	271.0
		% of Total	40.1%	9.1%	49.2%
	≤ 2	Count	21	5	26
		Expected Count	20.8	5.2	26.0
		% of Total	3.8%	.9%	4.7%
	> 2	Count	6	1	7
		Expected Count	5.6	1.4	7.0
		% of Total	1.1%	.2%	1.3%
Total		Count	440	111	551
		Expected Count	440.0	111.0	551.0
		% of Total	79.9%	20.1%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1.338[a]	3	.720
Likelihood Ratio	1.345	3	.719
Linear-by-Linear Association	1.103	1	.294
N of Valid Cases	551		

a. 1 cells (12.5%) have expected count less than 5. The minimum expected count is 1.41.

Crosstabs

Accidents per year * Did you practice car and motorcycle games? Crosstabulation

			Did you practice car and motorcycle games?		
			Yes	No	Total
Accidents per year	No Accident	Count	192	55	247
		Expected Count	197.2	49.8	247.0
		% of Total	34.8%	10.0%	44.8%
	≤ 2	Count	221	50	271
		Expected Count	216.4	54.6	271.0
		% of Total	40.1%	9.1%	49.2%
	> 2	Count	27	6	33
		Expected Count	26.4	6.6	33.0
		% of Total	4.9%	1.1%	6.0%
Total		Count	440	111	551
		Expected Count	440.0	111.0	551.0
		% of Total	79.9%	20.1%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1.254[a]	2	.534
Likelihood Ratio	1.250	2	.535
Linear-by-Linear Association	1.093	1	.296
N of Valid Cases	551		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 6.65.

10) Y2 – X81

Crosstabs

Accidents per year * Spent hours playing car and motorcycle games per week Crosstabulation

			Spent hours playing car and motorcycle games per week				
			None	(1 to 4) hours	(5 to10) hours	>10 hours	Total
Accidents per year	No Accident	Count	56	163	20	8	247
		Expected Count	52.4	160.5	22.4	11.7	247.0
		% of Total	10.2%	29.6%	3.6%	1.5%	44.8%
	≤1	Count	55	170	30	16	271
		Expected Count	57.5	176.1	24.6	12.8	271.0
		% of Total	10.0%	30.9%	5.4%	2.9%	49.2%
	≤ 2	Count	5	20	0	1	26
		Expected Count	5.5	16.9	2.4	1.2	26.0
		% of Total	.9%	3.6%	.0%	.2%	4.7%
	> 2	Count	1	5	0	1	7
		Expected Count	1.5	4.5	.6	.3	7.0
		% of Total	.2%	.9%	.0%	.2%	1.3%
Total		Count	117	358	50	26	551
		Expected Count	117.0	358.0	50.0	26.0	551.0
		% of Total	21.2%	65.0%	9.1%	4.7%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	9.224[a]	9	.417
Likelihood Ratio	11.741	9	.228
Linear-by-Linear Association	1.626	1	.202
N of Valid Cases	551		

a. 6 cells (37.5%) have expected count less than 5. The minimum expected count is .33.

Crosstabs

Accidents per year * Spent hours playing car and motorcycle games per week Crosstabulation

			Spent hours playing car and motorcycle games per week				
			None	(1 to 4) hours	(5 to10) hours	>10 hours	Total
Accidents per year	No Accident	Count	56	163	20	8	247
		Expected Count	52.4	160.5	22.4	11.7	247.0
		% of Total	10.2%	29.6%	3.6%	1.5%	44.8%
	≤ 2	Count	55	170	30	16	271
		Expected Count	57.5	176.1	24.6	12.8	271.0
		% of Total	10.0%	30.9%	5.4%	2.9%	49.2%
	> 2	Count	6	25	0	2	33
		Expected Count	7.0	21.4	3.0	1.6	33.0
		% of Total	1.1%	4.5%	.0%	.4%	6.0%
Total		Count	117	358	50	26	551
		Expected Count	117.0	358.0	50.0	26.0	551.0
		% of Total	21.2%	65.0%	9.1%	4.7%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	7.861[a]	6	.248
Likelihood Ratio	10.835	6	.094
Linear-by-Linear Association	1.530	1	.216
N of Valid Cases	551		

a. 2 cells (16.7%) have expected count less than 5. The minimum expected count is 1.56.

Crosstabs

Accidents per year * Spent hours playing car and motorcycle games per week Crosstabulation

			Spent hours playing car and motorcycle games per week			
			None	(1 to 4) hours	>=5 hours	Total
Accidents per year	No Accident	Count	56	163	28	247
		Expected Count	52.4	160.5	34.1	247.0
		% of Total	10.2%	29.6%	5.1%	44.8%
	≤ 2	Count	55	170	46	271
		Expected Count	57.5	176.1	37.4	271.0
		% of Total	10.0%	30.9%	8.3%	49.2%
	> 2	Count	6	25	2	33
		Expected Count	7.0	21.4	4.6	33.0
		% of Total	1.1%	4.5%	.4%	6.0%
Total		Count	117	358	76	551
		Expected Count	117.0	358.0	76.0	551.0
		% of Total	21.2%	65.0%	13.8%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	5.838[a]	4	.212
Likelihood Ratio	6.130	4	.190
Linear-by-Linear Association	.959	1	.327
N of Valid Cases	551		

a. 1 cells (11.1%) have expected count less than 5. The minimum expected count is 4.55.

Correlations

Nonparametric Correlations

Correlations

			Accidents per year	Spent hours playing car and motorcycle games per week
Spearman's rho	Accidents per year	Correlation Coefficient	1.000	.051
		Sig. (2-tailed)	.	.229
		N	551	551
	Spent hours playing car and motorcycle games per week	Correlation Coefficient	.051	1.000
		Sig. (2-tailed)	.229	.
		N	551	551

11) Y1 – X9

Crosstabs

Traffic Accidents * Did you practice driving over sand dunes? Crosstabulation

			Did you practice driving over sand dunes?			
			Always	Sometimes	Never	Total
Traffic Accidents	Yes	Count	28	125	151	304
		Expected Count	22.1	109.2	172.7	304.0
		% of Total	5.1%	22.7%	27.4%	55.2%
	No	Count	12	73	162	247
		Expected Count	17.9	88.8	140.3	247.0
		% of Total	2.2%	13.2%	29.4%	44.8%
Total		Count	40	198	313	551
		Expected Count	40.0	198.0	313.0	551.0
		% of Total	7.3%	35.9%	56.8%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	14.704[a]	2	.001
Likelihood Ratio	14.880	2	.001
Linear-by-Linear Association	14.141	1	.000
N of Valid Cases	551		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 17.93.

12) Y2 – X9

Crosstabs

Accidents per year * Did you practice driving over sand dunes? Crosstabulation

			Did you practice driving over sand dunes?			
			Always	Sometimes	Never	Total
Accidents per year	No Accident	Count	12	73	162	247
		Expected Count	17.9	88.8	140.3	247.0
		% of Total	2.2%	13.2%	29.4%	44.8%
	≤ 1	Count	25	108	138	271
		Expected Count	19.7	97.4	153.9	271.0
		% of Total	4.5%	19.6%	25.0%	49.2%
	≤ 2	Count	2	14	10	26
		Expected Count	1.9	9.3	14.8	26.0
		% of Total	.4%	2.5%	1.8%	4.7%
	> 2	Count	1	3	3	7
		Expected Count	.5	2.5	4.0	7.0
		% of Total	.2%	.5%	.5%	1.3%
Total		Count	40	198	313	551
		Expected Count	40.0	198.0	313.0	551.0
		% of Total	7.3%	35.9%	56.8%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	17.041[a]	6	.009
Likelihood Ratio	17.028	6	.009
Linear-by-Linear Association	14.211	1	.000
N of Valid Cases	551		

a. 4 cells (33.3%) have expected count less than 5. The minimum expected count is .51.

Crosstabs

Accidents per year * Did you practice driving over sand dunes? Crosstabulation

			Did you practice driving over sand dunes?			
			Always	Sometimes	Never	Total
Accidents per year	No Accident	Count	12	73	162	247
		Expected Count	17.9	88.8	140.3	247.0
		% of Total	2.2%	13.2%	29.4%	44.8%
	≤ 2	Count	25	108	138	271
		Expected Count	19.7	97.4	153.9	271.0
		% of Total	4.5%	19.6%	25.0%	49.2%
	> 2	Count	3	17	13	33
		Expected Count	2.4	11.9	18.7	33.0
		% of Total	.5%	3.1%	2.4%	6.0%
Total		Count	40	198	313	551
		Expected Count	40.0	198.0	313.0	551.0
		% of Total	7.3%	35.9%	56.8%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	16.506[a]	4	.002
Likelihood Ratio	16.631	4	.002
Linear-by-Linear Association	14.806	1	.000
N of Valid Cases	551		

a. 1 cells (11.1%) have expected count less than 5. The minimum expected count is 2.40.

Nonparametric Correlations

Correlations

			Accidents per year	Did you practice driving over sand dunes?
Spearman's rho	Accidents per year	Correlation Coefficient	1.000	-.170**
		Sig. (2-tailed)	.	.000
		N	551	551
	Did you practice driving over sand dunes?	Correlation Coefficient	-.170**	1.000
		Sig. (2-tailed)	.000	.
		N	551	551

**. Correlation is significant at the 0.01 level (2-tailed).

Note: The coding for X9 has been reversed

Nonparametric Correlations

Correlations

			Accidents per year	Did you practice driving over sand dunes?
Spearman's rho	Accidents per year	Correlation Coefficient	1.000	.170**
		Sig. (2-tailed)	.	.000
		N	551	551
	Did you practice driving over sand dunes?	Correlation Coefficient	.170**	1.000
		Sig. (2-tailed)	.000	.
		N	551	551

**. Correlation is significant at the 0.01 level (2-tailed).

14) Y2 – X10

Crosstabs

Accidents per year * Did you practice illegal drifting driving? Crosstabulation

			Did you practice illegal drifting driving?			
			Always	Sometimes	Never	Total
Accidents per year	No Accident	Count	13	36	198	247
		Expected Count	16.6	56.0	174.4	247.0
		% of Total	2.4%	6.5%	35.9%	44.8%
	≤1	Count	21	80	170	271
		Expected Count	18.2	61.5	191.3	271.0
		% of Total	3.8%	14.5%	30.9%	49.2%
	≤ 2	Count	2	7	17	26
		Expected Count	1.7	5.9	18.4	26.0
		% of Total	.4%	1.3%	3.1%	4.7%
	> 2	Count	1	2	4	7
		Expected Count	.5	1.6	4.9	7.0
		% of Total	.2%	.4%	.7%	1.3%
Total		Count	37	125	389	551
		Expected Count	37.0	125.0	389.0	551.0
		% of Total	6.7%	22.7%	70.6%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	20.752[a]	6	.002
Likelihood Ratio	21.160	6	.002
Linear-by-Linear Association	12.357	1	.000
N of Valid Cases	551		

a. 4 cells (33.3%) have expected count less than 5. The minimum expected count is .47.

Crosstabs

Accidents per year * Did you practice illegal drifting driving? Crosstabulation

			Did you practice illegal drifting driving?			
			Always	Sometimes	Never	Total
Accidents per year	No Accident	Count	13	36	198	247
		Expected Count	16.6	56.0	174.4	247.0
		% of Total	2.4%	6.5%	35.9%	44.8%
	≤ 2	Count	21	80	170	271
		Expected Count	18.2	61.5	191.3	271.0
		% of Total	3.8%	14.5%	30.9%	49.2%
	> 2	Count	3	9	21	33
		Expected Count	2.2	7.5	23.3	33.0
		% of Total	.5%	1.6%	3.8%	6.0%
Total		Count	37	125	389	551
		Expected Count	37.0	125.0	389.0	551.0
		% of Total	6.7%	22.7%	70.6%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	20.336[a]	4	.000
Likelihood Ratio	20.858	4	.000
Linear-by-Linear Association	12.742	1	.000
N of Valid Cases	551		

a. 1 cells (11.1%) have expected count less than 5. The minimum expected count is 2.22.

Note: The coding for X10 has been reversed
Nonparametric Correlations

Correlations

			Accidents per year	Did you practice illegal drifting driving?
Spearman's rho	Accidents per year	Correlation Coefficient	1.000	.177**
		Sig. (2-tailed)	.	.000
		N	551	551
	Did you practice illegal drifting driving?	Correlation Coefficient	.177**	1.000
		Sig. (2-tailed)	.000	.
		N	551	551

**. Correlation is significant at the 0.01 level (2-tailed).

13) Y1 – X10

Crosstabs

Traffic Accidents * Did you practice illegal drifting driving? Crosstabulation

			Did you practice illegal drifting driving?			
			Always	Sometimes	Never	Total
Traffic Accidents	Yes	Count	24	89	191	304
		Expected Count	20.4	69.0	214.6	304.0
		% of Total	4.4%	16.2%	34.7%	55.2%
	No	Count	13	36	198	247
		Expected Count	16.6	56.0	174.4	247.0
		% of Total	2.4%	6.5%	35.9%	44.8%
Total		Count	37	125	389	551
		Expected Count	37.0	125.0	389.0	551.0
		% of Total	6.7%	22.7%	70.6%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	20.188[a]	2	.000
Likelihood Ratio	20.738	2	.000
Linear-by-Linear Association	14.853	1	.000
N of Valid Cases	551		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 16.59.

15) Y1 – X11

Crosstabs

Traffic Accidents * Traffic Violations Crosstabulation

			Traffic Violations		
			Yes	No	Total
Traffic Accidents	Yes	Count	192	112	304
		Expected Count	140.7	163.3	304.0
		% of Total	34.8%	20.3%	55.2%
	No	Count	63	184	247
		Expected Count	114.3	132.7	247.0
		% of Total	11.4%	33.4%	44.8%
Total		Count	255	296	551
		Expected Count	255.0	296.0	551.0
		% of Total	46.3%	53.7%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	77.707[a]	1	.000		
Continuity Correction[b]	76.200	1	.000		
Likelihood Ratio	80.157	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	77.566	1	.000		
N of Valid Cases	551				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 114.31.

b. Computed only for a 2x2 Table

16) Y2 – X12

Crosstabs

Accidents per year * No. of traffic violations Crosstabulation

			No. of traffic violations				
			No violations	(1 - 5)	(6 - 10)	More than 10	Total
Accidents per year	No Accident	Count	184	54	8	1	247
		Expected Count	132.7	95.5	12.6	6.3	247.0
		% of Total	33.4%	9.8%	1.5%	.2%	44.8%
	≤ 1	Count	99	147	14	11	271
		Expected Count	145.6	104.8	13.8	6.9	271.0
		% of Total	18.0%	26.7%	2.5%	2.0%	49.2%
	≤ 2	Count	10	9	5	2	26
		Expected Count	14.0	10.1	1.3	.7	26.0
		% of Total	1.8%	1.6%	.9%	.4%	4.7%
	> 2	Count	3	3	1	0	7
		Expected Count	3.8	2.7	.4	.2	7.0
		% of Total	.5%	.5%	.2%	.0%	1.3%
Total		Count	296	213	28	14	551
		Expected Count	296.0	213.0	28.0	14.0	551.0
		% of Total	53.7%	38.7%	5.1%	2.5%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	94.074[a]	9	.000
Likelihood Ratio	92.279	9	.000
Linear-by-Linear Association	55.590	1	.000
N of Valid Cases	551		

a. 6 cells (37.5%) have expected count less than 5. The minimum expected count is .18.

Crosstabs

Accidents per year * No. of traffic violations Crosstabulation

			No. of traffic violations				
			No violations	(1 - 5)	(6 - 10)	More than 10	Total
Accidents per year	No Accident	Count	184	54	8	1	247
		Expected Count	132.7	95.5	12.6	6.3	247.0
		% of Total	33.4%	9.8%	1.5%	.2%	44.8%
	≤ 2	Count	99	147	14	11	271
		Expected Count	145.6	104.8	13.8	6.9	271.0
		% of Total	18.0%	26.7%	2.5%	2.0%	49.2%
	> 2	Count	13	12	6	2	33
		Expected Count	17.7	12.8	1.7	.8	33.0
		% of Total	2.4%	2.2%	1.1%	.4%	6.0%
Total		Count	296	213	28	14	551
		Expected Count	296.0	213.0	28.0	14.0	551.0
		% of Total	53.7%	38.7%	5.1%	2.5%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	92.407[a]	6	.000
Likelihood Ratio	91.122	6	.000
Linear-by-Linear Association	61.363	1	.000
N of Valid Cases	551		

a. 2 cells (16.7%) have expected count less than 5. The minimum expected count is .84.

Crosstabs

Accidents per year * No. of traffic violations Crosstabulation

			No. of traffic violations			
			No violations	(1 - 5)	>=6	Total
Accidents per year	No Accident	Count	184	54	9	247
		Expected Count	132.7	95.5	18.8	247.0
		% of Total	33.4%	9.8%	1.6%	44.8%
	≤ 2	Count	99	147	25	271
		Expected Count	145.6	104.8	20.7	271.0
		% of Total	18.0%	26.7%	4.5%	49.2%
	> 2	Count	13	12	8	33
		Expected Count	17.7	12.8	2.5	33.0
		% of Total	2.4%	2.2%	1.5%	6.0%
Total		Count	296	213	42	551
		Expected Count	296.0	213.0	42.0	551.0
		% of Total	53.7%	38.7%	7.6%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	89.107[a]	4	.000
Likelihood Ratio	87.227	4	.000
Linear-by-Linear Association	64.376	1	.000
N of Valid Cases	551		

a. 1 cells (11.1%) have expected count less than 5. The minimum expected count is 2.52.

Nonparametric Correlations

Correlations

			Accidents per year	No. of traffic violations
Spearman's rho	Accidents per year	Correlation Coefficient	1.000	.364**
		Sig. (2-tailed)	.	.000
		N	551	551
	No. of traffic violations	Correlation Coefficient	.364**	1.000
		Sig. (2-tailed)	.000	.
		N	551	551

**. Correlation is significant at the 0.01 level (2-tailed).

17) Y1 – X13

Crosstabs

Traffic Accidents * Abide traffic regulations Crosstabulation

			Abide traffic regulations			
			Always	Sometimes	Never	Total
Traffic Accidents	Yes	Count	72	200	32	304
		Expected Count	104.8	176.6	22.6	304.0
		% of Total	13.1%	36.3%	5.8%	55.2%
	No	Count	118	120	9	247
		Expected Count	85.2	143.4	18.4	247.0
		% of Total	21.4%	21.8%	1.6%	44.8%
Total		Count	190	320	41	551
		Expected Count	190.0	320.0	41.0	551.0
		% of Total	34.5%	58.1%	7.4%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	38.555[a]	2	.000
Likelihood Ratio	39.237	2	.000
Linear-by-Linear Association	37.700	1	.000
N of Valid Cases	551		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 18.38.

18) Y2 – X13

Crosstabs

Accidents per year * Abide traffic regulations Crosstabulation

			Abide traffic regulations			
			Always	Sometimes	Never	Total
Accidents per year	No Accident	Count	9	120	118	247
		Expected Count	18.4	143.4	85.2	247.0
		% of Total	1.6%	21.8%	21.4%	44.8%
	≤ 1	Count	28	180	63	271
		Expected Count	20.2	157.4	93.4	271.0
		% of Total	5.1%	32.7%	11.4%	49.2%
	≤ 2	Count	2	17	7	26
		Expected Count	1.9	15.1	9.0	26.0
		% of Total	.4%	3.1%	1.3%	4.7%
	> 2	Count	2	3	2	7
		Expected Count	.5	4.1	2.4	7.0
		% of Total	.4%	.5%	.4%	1.3%
Total		Count	41	320	190	551
		Expected Count	41.0	320.0	190.0	551.0
		% of Total	7.4%	58.1%	34.5%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	42.709[a]	6	.000
Likelihood Ratio	41.788	6	.000
Linear-by-Linear Association	29.795	1	.000
N of Valid Cases	551		

a. 4 cells (33.3%) have expected count less than 5. The minimum expected count is .52.

Crosstabs

Accidents per year * Abide traffic regulations Crosstabulation

			Abide traffic regulations			
			Always	Sometimes	Never	Total
Accidents per year	No Accident	Count	9	120	118	247
		Expected Count	18.4	143.4	85.2	247.0
		% of Total	1.6%	21.8%	21.4%	44.8%
	≤ 2	Count	28	180	63	271
		Expected Count	20.2	157.4	93.4	271.0
		% of Total	5.1%	32.7%	11.4%	49.2%
	> 2	Count	4	20	9	33
		Expected Count	2.5	19.2	11.4	33.0
		% of Total	.7%	3.6%	1.6%	6.0%
Total		Count	41	320	190	551
		Expected Count	41.0	320.0	190.0	551.0
		% of Total	7.4%	58.1%	34.5%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	38.991[a]	4	.000
Likelihood Ratio	39.671	4	.000
Linear-by-Linear Association	31.172	1	.000
N of Valid Cases	551		

a. 1 cells (11.1%) have expected count less than 5. The minimum expected count is 2.46.

Note: The coding for X10 has been reversed

Correlations

			Accidents per year	Abide traffic regulations
Spearman's rho	Accidents per year	Correlation Coefficient	1.000	-.253**
		Sig. (2-tailed)	.	.000
		N	551	551
	Abide traffic regulations	Correlation Coefficient	-.253**	1.000
		Sig. (2-tailed)	.000	.
		N	551	551

**. Correlation is significant at the 0.01 level (2-tailed).

19) Y2 – X15

Crosstabs

Accidents per year * fasten seat belt (at time of the accidents) Crosstabulation

			fasten seat belt (at time of the accidents)		
			Yes	No	Total
Accidents per year	≤ 1	Count	48	223	271
		Expected Count	49.0	222.0	271.0
		% of Total	15.8%	73.4%	89.1%
	≤ 2	Count	4	22	26
		Expected Count	4.7	21.3	26.0
		% of Total	1.3%	7.2%	8.6%
	> 2	Count	3	4	7
		Expected Count	1.3	5.7	7.0
		% of Total	1.0%	1.3%	2.3%
Total		Count	55	249	304
		Expected Count	55.0	249.0	304.0
		% of Total	18.1%	81.9%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	3.052[a]	2	.217
Likelihood Ratio	2.455	2	.293
Linear-by-Linear Association	1.054	1	.305
N of Valid Cases	304		

a. 2 cells (33.3%) have expected count less than 5. The minimum expected count is 1.27.

Crosstabs

Accidents per year * fasten seat belt (at time of the accidents) Crosstabulation

			fasten seat belt (at time of the accidents)		
			Yes	No	Total
Accidents per year	≤ 2	Count	48	223	271
		Expected Count	49.0	222.0	271.0
		% of Total	15.8%	73.4%	89.1%
	≤ 2	Count	7	26	33
		Expected Count	6.0	27.0	33.0
		% of Total	2.3%	8.6%	10.9%
Total		Count	55	249	304
		Expected Count	55.0	249.0	304.0
		% of Total	18.1%	81.9%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.243[a]	1	.622		
Continuity Correction[b]	.064	1	.800		
Likelihood Ratio	.234	1	.628		
Fisher's Exact Test				.633	.386
Linear-by-Linear Association	.242	1	.622		
N of Valid Cases	304				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 5.97.

b. Computed only for a 2x2 Table

20) Y2 – X16

Crosstabs

Accidents per year * Accidents time Crosstabulation

			Accidents time			
			At nighttime	At daytime	At both	Total
Accidents per year	≤ 2	Count	150	91	30	271
		Expected Count	147.1	89.1	34.8	271.0
		% of Total	49.3%	29.9%	9.9%	89.1%
	> 2	Count	15	9	9	33
		Expected Count	17.9	10.9	4.2	33.0
		% of Total	4.9%	3.0%	3.0%	10.9%
Total		Count	165	100	39	304
		Expected Count	165.0	100.0	39.0	304.0
		% of Total	54.3%	32.9%	12.8%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	6.906[a]	2	.032
Likelihood Ratio	5.662	2	.059
Linear-by-Linear Association	4.000	1	.045
N of Valid Cases	304		

a. 1 cells (16.7%) have expected count less than 5. The minimum expected count is 4.23.

21) Y2 – X17

Crosstabs

Accidents per year * the Purpose of the trip at the accidents time Crosstabulation

			the Purpose of the trip at the accidents time			
			For mission	For entertainment	For Both	Total
Accidents per year	≤ 2	Count	167	92	12	271
		Expected Count	165.8	91.8	13.4	271.0
		% of Total	54.9%	30.3%	3.9%	89.1%
	> 2	Count	19	11	3	33
		Expected Count	20.2	11.2	1.6	33.0
		% of Total	6.3%	3.6%	1.0%	10.9%
Total		Count	186	103	15	304
		Expected Count	186.0	103.0	15.0	304.0
		% of Total	61.2%	33.9%	4.9%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1.378[a]	2	.502
Likelihood Ratio	1.152	2	.562
Linear-by-Linear Association	.645	1	.422
N of Valid Cases	304		

a. 1 cells (16.7%) have expected count less than 5. The minimum expected count is 1.63.

22) Y2 – X18

Crosstabs

Accidents per year * Passengers during the accidents Crosstabulation

			Passengers during the accidents			
			Teenagers	Not teenagers	No passengers	Total
Accidents per year	≤ 1	Count	100	50	121	271
		Expected Count	106.1	46.4	118.6	271.0
		% of Total	32.9%	16.4%	39.8%	89.1%
	≤ 2	Count	15	2	9	26
		Expected Count	10.2	4.4	11.4	26.0
		% of Total	4.9%	.7%	3.0%	8.6%
	> 2	Count	4	0	3	7
		Expected Count	2.7	1.2	3.1	7.0
		% of Total	1.3%	.0%	1.0%	2.3%
Total		Count	119	52	133	304
		Expected Count	119.0	52.0	133.0	304.0
		% of Total	39.1%	17.1%	43.8%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	6.591[a]	4	.159
Likelihood Ratio	7.811	4	.099
Linear-by-Linear Association	2.396	1	.122
N of Valid Cases	304		

a. 4 cells (44.4%) have expected count less than 5. The minimum expected count is 1.20.

Crosstabs

Accidents per year * Passengers during the accidents Crosstabulation

			Passengers during the accidents			
			Teenagers	Not teenagers	No passengers	Total
Accidents per year	≤ 2	Count	100	50	121	271
		Expected Count	106.1	46.4	118.6	271.0
		% of Total	32.9%	16.4%	39.8%	89.1%
	> 2	Count	19	2	12	33
		Expected Count	12.9	5.6	14.4	33.0
		% of Total	6.3%	.7%	3.9%	10.9%
Total		Count	119	52	133	304
		Expected Count	119.0	52.0	133.0	304.0
		% of Total	39.1%	17.1%	43.8%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	6.314[a]	2	.043
Likelihood Ratio	6.758	2	.034
Linear-by-Linear Association	2.974	1	.085
N of Valid Cases	304		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 5.64.

23) Y2 – X19

Crosstabs

Accidents per year * Human and property damage Crosstabulation

			Human and property damage				
			Deaths	Disabilities	Serious injuries	Property damage only	Total
Accidents per year	≤ 1	Count	10	3	23	235	271
		Expected Count	9.8	2.7	23.2	235.3	271.0
		% of Total	3.3%	1.0%	7.6%	77.3%	89.1%
	≤ 2	Count	1	0	3	22	26
		Expected Count	.9	.3	2.2	22.6	26.0
		% of Total	.3%	.0%	1.0%	7.2%	8.6%
	> 3	Count	0	0	0	7	7
		Expected Count	.3	.1	.6	6.1	7.0
		% of Total	.0%	.0%	.0%	2.3%	2.3%
Total		Count	11	3	26	264	304
		Expected Count	11.0	3.0	26.0	264.0	304.0
		% of Total	3.6%	1.0%	8.6%	86.8%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1.652[a]	6	.949
Likelihood Ratio	2.795	6	.834
Linear-by-Linear Association	.329	1	.566
N of Valid Cases	304		

a. 7 cells (58.3%) have expected count less than 5. The minimum expected count is .07.

Crosstabs

Accidents per year * Human and property damage Crosstabulation

			Human and property damage				
			Deaths	Disabilities	Serious injuries	Property damage only	Total
Accidents per year	≤ 2	Count	10	3	23	235	271
		Expected Count	9.8	2.7	23.2	235.3	271.0
		% of Total	3.3%	1.0%	7.6%	77.3%	89.1%
	> 2	Count	1	0	3	29	33
		Expected Count	1.2	.3	2.8	28.7	33.0
		% of Total	.3%	.0%	1.0%	9.5%	10.9%
Total		Count	11	3	26	264	304
		Expected Count	11.0	3.0	26.0	264.0	304.0
		% of Total	3.6%	1.0%	8.6%	86.8%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	.418[a]	3	.937
Likelihood Ratio	.744	3	.863
Linear-by-Linear Association	.093	1	.760
N of Valid Cases	304		

a. 4 cells (50.0%) have expected count less than 5. The minimum expected count is .33.

Crosstabs

Accidents per year * Human and property damage Crosstabulation

			Human and property damage			
			Deaths & Disabilities	Serious injuries	Property damage only	Total
Accidents per year	≤ 2	Count	13	23	235	271
		Expected Count	12.5	23.2	235.3	271.0
		% of Total	4.3%	7.6%	77.3%	89.1%
	> 2	Count	1	3	29	33
		Expected Count	1.5	2.8	28.7	33.0
		% of Total	.3%	1.0%	9.5%	10.9%
Total		Count	14	26	264	304
		Expected Count	14.0	26.0	264.0	304.0
		% of Total	4.6%	8.6%	86.8%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	.217[a]	2	.897
Likelihood Ratio	.241	2	.887
Linear-by-Linear Association	.144	1	.705
N of Valid Cases	304		

a. 2 cells (33.3%) have expected count less than 5. The minimum expected count is 1.52.

Nonparametric Correlations

Correlations

			Accidents per year	Human and property damage
Spearman's rho	Accidents per year	Correlation Coefficient	1.000	.015
		Sig. (2-tailed)	.	.797
		N	304	304
	Human and property damage	Correlation Coefficient	.015	1.000
		Sig. (2-tailed)	.797	.
		N	304	304

24) X16 – X17

Crosstabs

Accidents time * the Purpose of the trip at the accidents time Crosstabulation

			the Purpose of the trip at the accidents time			
			For mission	For entertainment	For Both	Total
Accidents time	At nighttime	Count	111	52	2	165
		Expected Count	101.0	55.9	8.1	165.0
		% of Total	36.5%	17.1%	.7%	54.3%
	At daytime	Count	57	40	3	100
		Expected Count	61.2	33.9	4.9	100.0
		% of Total	18.8%	13.2%	1.0%	32.9%
	At both	Count	18	11	10	39
		Expected Count	23.9	13.2	1.9	39.0
		% of Total	5.9%	3.6%	3.3%	12.8%
Total		Count	186	103	15	304
		Expected Count	186.0	103.0	15.0	304.0
		% of Total	61.2%	33.9%	4.9%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	43.755[a]	4	.000
Likelihood Ratio	28.912	4	.000
Linear-by-Linear Association	17.285	1	.000
N of Valid Cases	304		

a. 2 cells (22.2%) have expected count less than 5. The minimum expected count is 1.92.

25) X16 – X18

Crosstabs

Accidents time * Passengers during the accidents Crosstabulation

			Passengers during the accidents			
			Teenagers	Not teenagers	No passengers	Total
Accidents time	At nighttime	Count	58	27	80	165
		Expected Count	64.6	28.2	72.2	165.0
		% of Total	19.1%	8.9%	26.3%	54.3%
	At daytime	Count	43	20	37	100
		Expected Count	39.1	17.1	43.8	100.0
		% of Total	14.1%	6.6%	12.2%	32.9%
	At both	Count	18	5	16	39
		Expected Count	15.3	6.7	17.1	39.0
		% of Total	5.9%	1.6%	5.3%	12.8%
Total		Count	119	52	133	304
		Expected Count	119.0	52.0	133.0	304.0
		% of Total	39.1%	17.1%	43.8%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	4.456[a]	4	.348
Likelihood Ratio	4.487	4	.344
Linear-by-Linear Association	2.630	1	.105
N of Valid Cases	304		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 6.67.

26) X17 – X18

Crosstabs

the Purpose of the trip at the accidents time * Passengers during the accidents Crosstabulation

			Passengers during the accidents			
			Teenagers	Not teenagers	No passengers	Total
the Purpose of the trip at the accidents time	For mission	Count	54	40	92	186
		Expected Count	72.8	31.8	81.4	186.0
		% of Total	17.8%	13.2%	30.3%	61.2%
	For entertainment	Count	59	10	34	103
		Expected Count	40.3	17.6	45.1	103.0
		% of Total	19.4%	3.3%	11.2%	33.9%
	For Both	Count	6	2	7	15
		Expected Count	5.9	2.6	6.6	15.0
		% of Total	2.0%	.7%	2.3%	4.9%
Total		Count	119	52	133	304
		Expected Count	119.0	52.0	133.0	304.0
		% of Total	39.1%	17.1%	43.8%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	23.174[a]	4	.000
Likelihood Ratio	23.226	4	.000
Linear-by-Linear Association	9.756	1	.002
N of Valid Cases	304		

a. 1 cells (11.1%) have expected count less than 5. The minimum expected count is 2.57.

27) X14 – X4

Crosstabs

Start driving age * No. of Traffic accidents Crosstabulation

			No. of Traffic accidents				
			No accidents	1 to 2	3 to 4	More than 4	Total
Start driving age	< 14 yrs	Count	25	43	13	6	87
		Expected Count	39.0	35.2	10.7	2.1	87.0
		% of Total	4.5%	7.8%	2.4%	1.1%	15.8%
	14-17 yrs	Count	195	165	49	6	415
		Expected Count	186.0	168.0	51.2	9.8	415.0
		% of Total	35.4%	29.9%	8.9%	1.1%	75.3%
	18-21 yrs	Count	27	15	6	1	49
		Expected Count	22.0	19.8	6.0	1.2	49.0
		% of Total	4.9%	2.7%	1.1%	.2%	8.9%
Total		Count	247	223	68	13	551
		Expected Count	247.0	223.0	68.0	13.0	551.0
		% of Total	44.8%	40.5%	12.3%	2.4%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	19.217[a]	6	.004
Likelihood Ratio	17.462	6	.008
Linear-by-Linear Association	11.097	1	.001
N of Valid Cases	551		

a. 2 cells (16.7%) have expected count less than 5. The minimum expected count is 1.16.

Crosstabs

Start driving age * No. of Traffic accidents Crosstabulation

			No. of Traffic accidents			
			No accidents	1 to 2	>=3	Total
Start driving age	< 14 yrs	Count	25	43	19	87
		Expected Count	39.0	35.2	12.8	87.0
		% of Total	4.5%	7.8%	3.4%	15.8%
	14-17 yrs	Count	195	165	55	415
		Expected Count	186.0	168.0	61.0	415.0
		% of Total	35.4%	29.9%	10.0%	75.3%
	18-21 yrs	Count	27	15	7	49
		Expected Count	22.0	19.8	7.2	49.0
		% of Total	4.9%	2.7%	1.3%	8.9%
Total		Count	247	223	81	551
		Expected Count	247.0	223.0	81.0	551.0
		% of Total	44.8%	40.5%	14.7%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	13.177[a]	4	.010
Likelihood Ratio	13.451	4	.009
Linear-by-Linear Association	9.606	1	.002
N of Valid Cases	551		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 7.20.

Nonparametric Correlations

Correlations

			Start driving age	No. of Traffic accidents
Spearman's rho	Start driving age	Correlation Coefficient	1.000	-.143**
		Sig. (2-tailed)	.	.001
		N	551	551
	No. of Traffic accidents	Correlation Coefficient	-.143**	1.000
		Sig. (2-tailed)	.001	.
		N	551	551

**. Correlation is significant at the 0.01 level (2-tailed).

28) X14 – X12

Crosstabs

No. of traffic violations * No. of Traffic accidents Crosstabulation

			No. of Traffic accidents				
			No accidents	1 to 2	3 to 4	More than 4	Total
No. of traffic violations	No violations	Count	184	91	19	2	296
		Expected Count	132.7	119.8	36.5	7.0	296.0
		% of Total	33.4%	16.5%	3.4%	.4%	53.7%
	(1 - 5)	Count	54	119	33	7	213
		Expected Count	95.5	86.2	26.3	5.0	213.0
		% of Total	9.8%	21.6%	6.0%	1.3%	38.7%
	(6 - 10)	Count	8	7	10	3	28
		Expected Count	12.6	11.3	3.5	.7	28.0
		% of Total	1.5%	1.3%	1.8%	.5%	5.1%
	More than 10	Count	1	6	6	1	14
		Expected Count	6.3	5.7	1.7	.3	14.0
		% of Total	.2%	1.1%	1.1%	.2%	2.5%
Total		Count	247	223	68	13	551
		Expected Count	247.0	223.0	68.0	13.0	551.0
		% of Total	44.8%	40.5%	12.3%	2.4%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	112.083[a]	9	.000
Likelihood Ratio	105.801	9	.000
Linear-by-Linear Association	83.302	1	.000
N of Valid Cases	551		

a. 4 cells (25.0%) have expected count less than 5. The minimum expected count is .33.

Crosstabs

No. of traffic violations * No. of Traffic accidents Crosstabulation

			No. of Traffic accidents			
			No accidents	1 to 2	>=3	Total
No. of traffic violations	No violations	Count	184	91	21	296
		Expected Count	132.7	119.8	43.5	296.0
		% of Total	33.4%	16.5%	3.8%	53.7%
	(1 - 5)	Count	54	119	40	213
		Expected Count	95.5	86.2	31.3	213.0
		% of Total	9.8%	21.6%	7.3%	38.7%
	(6 - 10)	Count	8	7	13	28
		Expected Count	12.6	11.3	4.1	28.0
		% of Total	1.5%	1.3%	2.4%	5.1%
	More than 10	Count	1	6	7	14
		Expected Count	6.3	5.7	2.1	14.0
		% of Total	.2%	1.1%	1.3%	2.5%
Total		Count	247	223	81	551
		Expected Count	247.0	223.0	81.0	551.0
		% of Total	44.8%	40.5%	14.7%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	110.123[a]	6	.000
Likelihood Ratio	104.535	6	.000
Linear-by-Linear Association	83.304	1	.000
N of Valid Cases	551		

a. 2 cells (16.7%) have expected count less than 5. The minimum expected count is 2.06.

Crosstabs

No. of traffic violations * No. of Traffic accidents Crosstabulation

			No. of Traffic accidents			
			No accidents	1 to 2	>=3	Total
No. of traffic violations	No violations	Count	184	91	21	296
		Expected Count	132.7	119.8	43.5	296.0
		% of Total	33.4%	16.5%	3.8%	53.7%
	(1 - 5)	Count	54	119	40	213
		Expected Count	95.5	86.2	31.3	213.0
		% of Total	9.8%	21.6%	7.3%	38.7%
	>=6	Count	9	13	20	42
		Expected Count	18.8	17.0	6.2	42.0
		% of Total	1.6%	2.4%	3.6%	7.6%
Total		Count	247	223	81	551
		Expected Count	247.0	223.0	81.0	551.0
		% of Total	44.8%	40.5%	14.7%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	108.351[a]	4	.000
Likelihood Ratio	101.190	4	.000
Linear-by-Linear Association	85.099	1	.000
N of Valid Cases	551		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 6.17.

Nonparametric Correlations

Correlations

			No. of Traffic accidents	No. of traffic violations
Spearman's rho	No. of Traffic accidents	Correlation Coefficient	1.000	.399**
		Sig. (2-tailed)	.	.000
		N	551	551
	No. of traffic violations	Correlation Coefficient	.399**	1.000
		Sig. (2-tailed)	.000	.
		N	551	551

**. Correlation is significant at the 0.01 level (2-tailed).

29) X12 – X4

Crosstabs

Start driving age * No. of traffic violations Crosstabulation

			No. of traffic violations				
			No violations	(1 - 5)	(6 - 10)	More than 10	Total
Start driving age	< 14 yrs	Count	26	48	10	3	87
		Expected Count	46.7	33.6	4.4	2.2	87.0
		% of Total	4.7%	8.7%	1.8%	.5%	15.8%
	14-17 yrs	Count	237	150	17	11	415
		Expected Count	222.9	160.4	21.1	10.5	415.0
		% of Total	43.0%	27.2%	3.1%	2.0%	75.3%
	18-21 yrs	Count	33	15	1	0	49
		Expected Count	26.3	18.9	2.5	1.2	49.0
		% of Total	6.0%	2.7%	.2%	.0%	8.9%
Total		Count	296	213	28	14	551
		Expected Count	296.0	213.0	28.0	14.0	551.0
		% of Total	53.7%	38.7%	5.1%	2.5%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	29.689[a]	6	.000
Likelihood Ratio	30.339	6	.000
Linear-by-Linear Association	22.248	1	.000
N of Valid Cases	551		

a. 4 cells (33.3%) have expected count less than 5. The minimum expected count is 1.25.

Crosstabs

Start driving age * No. of traffic violations Crosstabulation

			No. of traffic violations			
			No violations	(1 - 5)	>=6	Total
Start driving age	< 14 yrs	Count	26	48	13	87
		Expected Count	46.7	33.6	6.6	87.0
		% of Total	4.7%	8.7%	2.4%	15.8%
	14-17 yrs	Count	237	150	28	415
		Expected Count	222.9	160.4	31.6	415.0
		% of Total	43.0%	27.2%	5.1%	75.3%
	18-21 yrs	Count	33	15	1	49
		Expected Count	26.3	18.9	3.7	49.0
		% of Total	6.0%	2.7%	.2%	8.9%
Total		Count	296	213	42	551
		Expected Count	296.0	213.0	42.0	551.0
		% of Total	53.7%	38.7%	7.6%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	27.954[a]	4	.000
Likelihood Ratio	28.437	4	.000
Linear-by-Linear Association	24.892	1	.000
N of Valid Cases	551		

a. 1 cells (11.1%) have expected count less than 5. The minimum expected count is 3.74.

Nonparametric Correlations

Correlations

			No. of traffic violations	Start driving age
Spearman's rho	No. of traffic violations	Correlation Coefficient	1.000	-.214**
		Sig. (2-tailed)	.	.000
		N	551	551
	Start driving age	Correlation Coefficient	-.214**	1.000
		Sig. (2-tailed)	.000	.
		N	551	551

**. Correlation is significant at the 0.01 level (2-tailed).

30-34) Y1 – (X20-1), (X20-2), (X20-3), (X20-4), and (X20-5)

T-Test

Group Statistics

	Traffic Accidents	N	Mean	Std. Deviation	Std. Error Mean
Extroversion	Yes	233	24.65	3.726	.244
	No	191	24.21	3.545	.257
Agreeableness	Yes	233	23.64	3.101	.203
	No	191	23.94	2.725	.197
Conscientiousness	Yes	233	18.67	3.534	.232
	No	191	19.43	3.077	.223
Neuroticism	Yes	233	13.68	3.566	.234
	No	191	12.92	3.208	.232
Openness	Yes	233	28.24	3.991	.261
	No	191	28.18	3.688	.267

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means				
							95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Lower	Upper
Extroversion	Equal variances assumed	.424	.515	1.230	422	.219	-.262	1.137
	Equal variances not assumed			1.236	412.724	.217	-.258	1.134
Agreeableness	Equal variances assumed	3.007	.084	-1.023	422	.307	-.857	.270
	Equal variances not assumed			-1.036	419.940	.301	-.850	.263
Conscientiousness	Equal variances assumed	2.679	.102	-2.320	422	.021	-1.396	-.115
	Equal variances not assumed			-2.352	420.447	.019	-1.387	-.124
Neuroticism	Equal variances assumed	1.390	.239	2.273	422	.024	.102	1.411
	Equal variances not assumed			2.297	418.336	.022	.109	1.404
Openness	Equal variances assumed	1.126	.289	.140	422	.889	-.687	.793
	Equal variances not assumed			.141	415.959	.888	-.682	.787

35-39) X11 – (X20-1), (X20-2), (X20-3), (X20-4), and (X20-5)

T-Test

Group Statistics

	traffic violations	N	Mean	Std. Deviation	Std. Error Mean
Extroversion	Yes	196	24.44	3.831	.274
	No	228	24.47	3.491	.231
Agreeableness	Yes	196	23.54	2.854	.204
	No	228	23.98	3.000	.199
Conscientiousness	Yes	196	18.59	3.492	.249
	No	228	19.38	3.192	.211
Neuroticism	Yes	196	13.88	3.438	.246
	No	228	12.87	3.354	.222
Openness	Yes	196	27.95	3.883	.277
	No	228	28.44	3.822	.253

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means				
							95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Lower	Upper
Extroversion	Equal variances assumed	1.286	.257	-.086	422	.932	-.730	.669
	Equal variances not assumed			-.085	398.378	.932	-.735	.674
Agreeableness	Equal variances assumed	.171	.680	-1.530	422	.127	-.999	.124
	Equal variances not assumed			-1.536	417.657	.125	-.997	.122
Conscientiousness	Equal variances assumed	1.049	.306	-2.418	422	.016	-1.424	-.147
	Equal variances not assumed			-2.402	398.976	.017	-1.428	-.143
Neuroticism	Equal variances assumed	.035	.852	3.069	422	.002	.365	1.664
	Equal variances not assumed			3.063	409.301	.002	.363	1.665
Openness	Equal variances assumed	.017	.897	-1.306	422	.192	-1.227	.248
	Equal variances not assumed			-1.304	410.501	.193	-1.228	.248

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